CITY AND COUNTY OF SAN FRANCISCO

DEPARTMENT OF CITY PLANNING

SUPPLEMENT TO DRAFT ENVIRONMENTAL IMPACT REPORT

505 MONTGOMERY STREET

82.463E

APRIL 27, 1984

WRITTEN COMMENTS, ON THIS MATERIAL ONLY, SHOULD BE SENT TO THE ENVIRONMENTAL REVIEW OFFICER, 450 McALLISTER STREET, 5th FLOOR, SAN FRANCISCO, CA. 94102

PLEASE NOTE: THERE WILL BE NO PUBLIC HEARING ON THIS SUPPLEMENT.

SUPPLEMENT PUBLIC COMMENT PERIOD: APRIL 27–MAY 29,1984

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STATE CLEARINGHOUSE NO. 83112904

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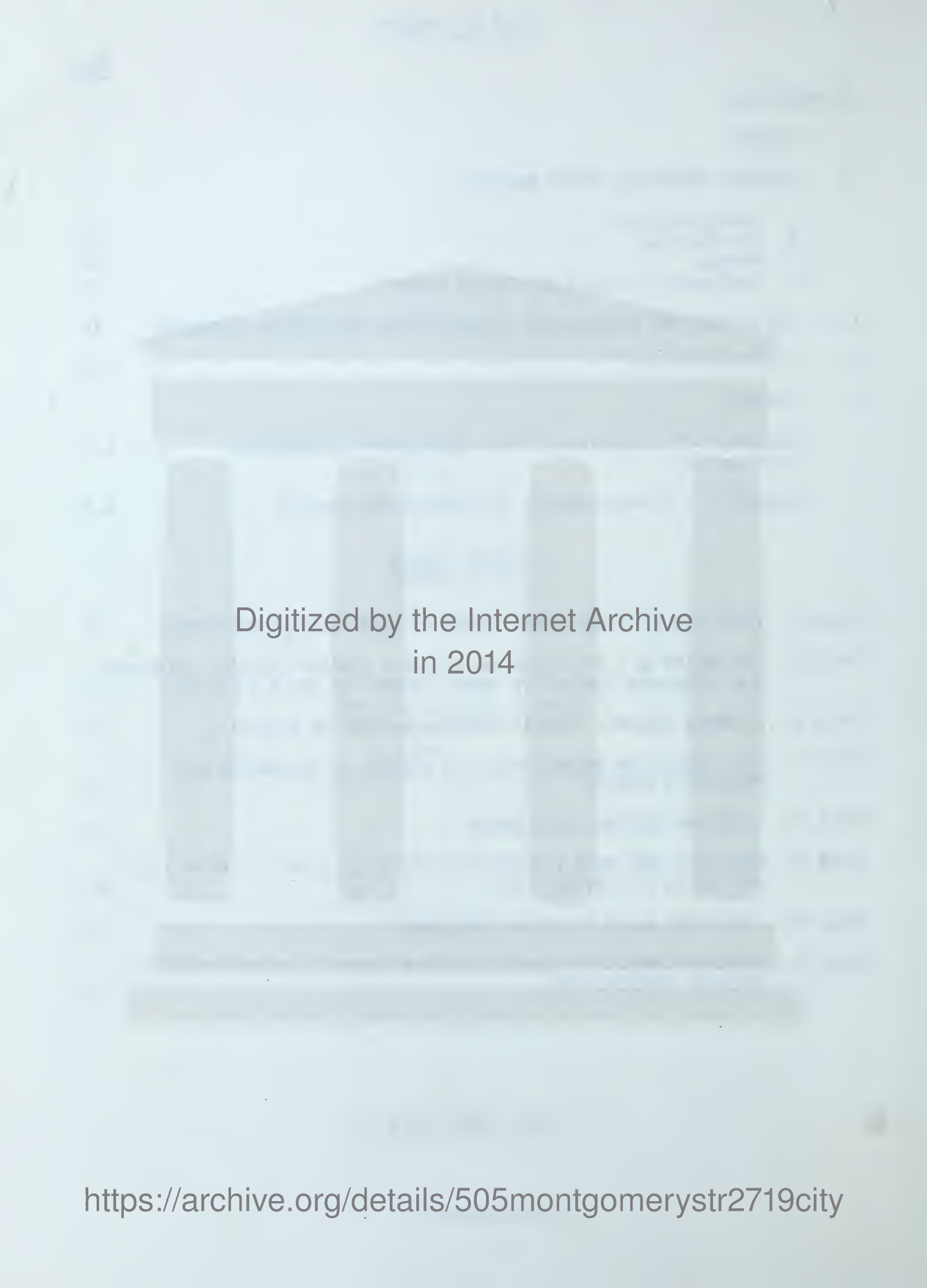

INTRODUCTION

Since the publication of the 505 Montgomery Street Draft Environmental Impact Report (DEIR) on November 25, 1983, the Department of City Planning has revised its list of projected Cumulative Office Development in Downtown San Francisco. This Supplement to the 505 Montgomery Street DEIR has been prepared to update the DEIR cumulative analysis to the most recent (March 10, 1984) cumulative development projections prepared by the Department.

In addition to updating the 505 Montgomery Street DEIR to reflect the revised cumulative development projections, this Supplement also presents a revised cumulative analysis of the Transportation, Air Quality, Energy and Housing impacts of the project, using the cumulative analysis methodology developed for the Downtown Plan DEIR (published March 16, 1984). Subjects not covered in this Supplement were either focused out of the DEIR as not having significant environmental effects, or are not affected by changes in cumulative development projections for Downtown San Francisco or cumulative analysis methodology: Land Use and Zoning; Historic, Architectural Resources; Urban Design and Visual Quality; Shadow and Wind; Noise; Utilities and Public Services; Biology; Topography, Soils, Geology; Hazards; Growth Inducement; Significant Environmental Effects that Cannot be Avoided if the Project is Implemented; and Alternatives.

The 505 Montgomery Street and the Downtown Plan DEIRs' cumulative analysis methodologies differ in that the cumulative analysis in the 505 Montgomery Street DEIR was based on the projected number of square feet of cumulative development, whereas in the Downtown Plan DEIR, it is based on the projected amount of employment. A comparison of the two methodologies is provided under each section in this Supplement. Under each topic discussed, those portions of the DEIR which are replaced by new or updated information are identified. Additions to the DEIR are also noted. Not all material is new. That is, some material from the 505 Montgomery Street DEIR is repeated here for clarity.

I. SUMMARY

The following text replaces the Transportation, Circulation and Parking summary on pp. 3-5 of the DEIR:

"TRANSPORTATION, CIRCULATION AND PARKING

"Cumulative transportation impacts have been calculated by a development-list-based method used in most past San Francisco EIRs and by the new predicted employment-based method first presented in the Downtown Plan Draft EIR, published March 16, 1984. The employment-based model takes into account area-wide housing availability, planned transit system improvements, the effect of congestion on mode selection decisions, and other factors which are expected to change with time, thus giving a more realistic and sophisticated prediction than the list-based method which assumes no changes in modal split or residence patterns of San Francisco workers between now and the year 2000. The two methods are not directly comparable because the employment-based method analyzes C-3 and non-C-3 District trips, while the development list covers only travel from office and retail in the greater Downtown area.

"Net new trip generation from the project would be about 4,700 person-trip-ends (pte) per day. About 800 new outbound trips would occur during the p.m. peak period, 500 of these during the peak hour. Using modal splits predicted for the year 2000 by the Downtown Plan Draft EIR, the main peak-period trip contributions would be to Muni - 210 trips, BART - 170 trips, walk only - 130 trips, drive alone - 120 trips and car/vanpool - 130 trips.

"The list method predicts 30,000 cumulative peak hour pte/day from the C-3 District in the mid-1990s, about 45% less than the 54,000 pte/day predicted by the employment-based methodology for the year 2000. The list method predicts the greatest impacts to be on Muni (7,800 trips) and BART (4,500 Transbay trips). The employment method also predicts the greatest impact on these two

transit systems but predicts relatively more trips on BART (11,800 Transbay BART trips and 5,600 Muni trips). This difference is largely due to differences in the year for which the predictions were made, in San Francisco housing and in roadway/transit capacity availability assumptions between the two methods.

"The transit demand from the project would represent about 0.3% of the total transit demand in the year 2000. Cumulative development under the Downtown Plan to the year 2000 would be expected to cause the following changes in transit Levels of Service during the peak period: Muni Northeast Corridor - D to C, BART Transbay - F to E, AC Transit - C to D, Golden Gate Ferry - B to A, Tiburon Ferry - B to C, and CalTrain - B to C. These projections include planned capacity increases of transit carriers.

"The proposed project would generate about 200 new pedestrian trips on the surrounding sidewalks during the noon 15-minute peak period and about 140 new pedestrian trips during the p.m. 15-minute peak period. Sidewalk operations, currently in the impeded range on Montgomery St. and Sacramento St. during the noon hour and unimpeded in the p.m. peak hour, would be in the impeded range with the addition of cumulative development, and with the further addition of project pedestrian flows. Crosswalk operations at the Sacramento/Montgomery Sts. intersection would be in the impeded range, during both the noon and p.m. peak hours, with the addition of cumulative development. The addition of project pedestrians to cumulative flows would change the Sacramento St. crosswalk operation to the lower end of the constrained range during the noon hour.

"About 0.2% of year 2000 Bay Bridge peak period demand would be due to the project. About 0.1% of peak-period demand on the Golden Gate Bridge, U.S. 101 (south of Harney Way), and I-280 (between Alemany Blvd. and San Jose Ave.) would be due to the project.

"Cumulative development by the year 2000 would be expected to decrease the peak-hour intersection Levels of Service at Battery and Washington Sts. from B to C, and at Battery and Washington Sts. from C to D.

"The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent less than 1% of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in the year 2000 if vehicular demand occurs as projected.

"The project would have one 35-ft.-long and one 25-ft.-long off-street loading space, and would meet City Planning Code requirements. It would not meet loading space standards adopted as policy by the City Planning Commission in Resolution No. 9286, which would require three 35-ft. loading spaces for the project."

The following text replaces the Air Quality summary on p. 5 of the DEIR:

"AIR QUALITY

"Projections of future pollutant emissions and carbon monoxide concentrations under two different approaches to future growth projections (the Cumulative List and the Downtown Plan Draft EIR) vary in the magnitude but not in the type of air quality impacts.

"Project-generated traffic and cumulative downtown development traffic would add to regional pollutant emissions. Because nitrogen oxides emissions would exceed hydrocarbon emissions, such development would not increase the Bay Area ozone concentrations which would otherwise occur. These excess nitrogen oxides emissions could, however, increase ozone and/or nitrogenous oxidant concentrations further downwind, outside the Bay Area. Nitrogen oxides emissions could also lead to violations of the nitrogen dioxide standard or reduce visibility.

"Carbon monoxide concentrations at the intersections of Battery and Washington Sts. and Battery and Clay Sts. are projected to be within the ambient standards with project and cumulative development. The effects of emission controls on new vehicles would more than offset the increases in traffic volumes and traffic congestion at these locations.

"Emissions of total suspended particulate by project and cumulative development traffic would increase particulate concentrations and could increase the frequency of standard violations.

"The project and cumulative downtown development would not directly conflict with the pollution reduction strategies of the 1982 Bay Area Air Quality Plan, nor would it indirectly conflict with the objectives of the Plan."

The following paragraphs are added to the Energy summary, p. 6 of the DEIR:.

"Yearly estimated electrical consumption for the projected 19 million square feet of additional office space at the time of buildout (mid 1990s) of the projects on March 10, 1984 list of projected Cumulative Office Development in Downtown San Francisco would be approximately 340 million kWh of power per year. PG&E projects an increase in energy demand over the next decade of about 200 million kWh per year. The lower PG&E estimate is largely due to a lower development estimate.

"The Downtown Plan Draft EIR predicts an increase of about 210 million kWh of electrical consumption per year between 1984 and 1990 and 330-350 million kWh for the years between 1990-2000. PG&E and the Downtown Plan Draft EIR do not predict energy consumption for exactly the same time period and thus are not comparable."

The following paragraph is added after the first paragraph of the Employment, Housing and Fiscal Factors summary on p. 6 of the DEIR:

"Employment forecasts to the year 2000 in the C-3 District for development under alternatives evaluated in the Downtown Plan DEIR would result in an increase of 24,000 to 28,000 office workers living in the City. Development of projects on the Cumulative List would result in 11,400 to 22,800, or 30,400 new workers living in the City, depending upon the formula used to estimate this number. The Downtown Plan DEIR and the Cumulative List estimates are not directly comparable, as they are based on different methodologies and assumptions."

II. REVISED CUMULATIVE IMPACT ANALYSIS

A. TRANSPORTATION, CIRCULATION AND PARKING IMPACTS

The following text replaces the DEIR transportation impacts analysis, beginning on p. 92, "Travel Demand Analysis," through p. 105 including Table 5 through Table 8. The "Demolition, Excavation and Construction Traffic" section on pp. 90-92, the "Transportation Policies of the Master Plan" and "Truck Loading and Delivery" sections on pp. 105-108, and Footnotes /1, 2 and 10/ through /13/ on pp. 108-109 are unchanged and are not included in the revised text.

"TRAVEL DEMAND ANALYSIS

"Project Travel Demand

"On the basis of land use, the project would generate about 4,700 net new person trips-ends (pte) per day./3/ These figures include trips made by auto, public transit, and other modes. Travel generated by existing office and retail uses on the project site has been subtracted from the total new travel to give the net new travel from the site. Projected p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 5. About 800 new outbound trips would occur during the p.m. peak-period due to the project, of which, about 500 would occur in the p.m. peak hour./4/

"Modal assignments have been made on the basis of future modal splits for the year 2000 contained in the Draft EIR for The Downtown Plan (EE81.3)./5/ The future modal splits have been applied to the project travel for the purpose of comparing project travel with future travel demand on the transportation system serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and thus represent an average condition. The actual modal split for travel from the project may vary from the C-3 District average. However, because the travel demand forecasts used to derive the average modal split

data include the travel from the project, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

TABLE 5: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM 505 MONTGOMERY (pte/a/)

Travel Mode	P.M. Peak Period/b/	P.M. Peak Hour/b/
Drive Alone	120	70
Car/Vanpool	130	100
Muni	210	110
BART	170	110
AC Transit	50	30
SamTrans	10	10
SPRR	20	10
GGT Bus	40	30
Ferry	10	--
Walk Only	30	20
Other	10	10
TOTALS (rounded)	800	500

/a/ Person trip-ends.
/b/ The peak hour occurs during the two-hour peak period of 4:00-6:00 p.m.

SOURCE: Environmental Science Associates, Inc.

"Cumulative Travel Demand

"Analysis of the transportation impacts of cumulative development in San Francisco EIRs has been the subject of considerable public discussion. To date, cumulative analysis has been conducted on the basis of a list of proposed development in the greater downtown area (see Table C-2, Appendix C, [pp. A-5 to A-8 of this report] for the March 10, 1984 list of these projects). The Downtown Plan Draft EIR presents a refinement of the existing process by using projections of employment growth, independent of a list of proposed projects, to project future travel./6/

"As discussed in Appendix J of the Downtown Plan Draft EIR, planned transit service improvements have been assumed to be implemented by the year 2000. These planned improvements would allow system capacities to keep pace with demand increases over time. The Downtown Plan Draft EIR analysis also assumes that regional auto use will continue to change over time in response to the increasing levels of congestion on the bridges and freeways serving the City. The analysis projects a shift from single-occupant auto use (drive alone) for commuting to ridesharing (carpool, vanpool), and to transit use.

"The travel data presented in the Downtown Plan Draft EIR transportation sections (and in this report) are projections of total demand on the transportation system serving San Francisco. The projections are comprised of three components of travel demand. Two of the components were developed through an intricate travel modelling process for the C-3 District of San Francisco. These first two components of travel demand are C-3 District work (employee journey-to-work) travel and C-3 District non-work (all other) travel. The third component is non-C-3 District travel which was forecast through an analysis of regional trends adjusted for the effect of development in the C-3 District.

"Although the C-3 District modelling process used analytical techniques common to travel forecasting, several portions of the process are unique to the C-3 District. The uniqueness is the result of the development of two major data bases - an inventory of existing land uses in the district and surveys of employees and employers in the district. The data developed from the surveys and the inventory have been used as the basis for forecasts of development and employment growth in the C-3 District. Sections IV.B, Land Use and Real Estate Development; IV.C, Business and Employment; IV.D., Residence Patterns and Housing; and Appendices G, Land Use and Real Estate Analysis; H, Business and Employment Analysis; and I, Theoretical Discussion of Housing Market Effects/Methodology for Forecasting Residence Patterns, of the Downtown Plan Draft EIR, which contain detailed information about methods used to project future employment in the C-3 District, are incorporated by reference into this report. The employment projections in the Downtown Plan Draft EIR for the year 2000 exceed the maximum employment projected using the current list-based cumulative analysis, as the list cannot take into account projects not yet

proposed. The employment forecasts have been used as the basis for the travel demand modelling process. As described above, the C-3 District travel comprised two of the three components of total travel. Because of the use of the employment projections in the travel demand modelling process, the transportation forecasts for the year 2000 are independent of lists of cumulative development.

"Through a complex calibration and validation process of comparing projections of travel demand modelled on the basis of the survey of C-3 District employees to actual travel from measurements made by state, city and regional agencies, work and non-work travel demand from the C-3 District was modelled for the years 1984, 1990 and 2000. The modelling process is comprised of the following steps:

"- Trip generation rates (empirical measures of total travel to and from a specific land use) were applied to employment forecasts by business activity (i.e., different rates were used for various land uses).

"- The total travel from the C-3 District was distributed to seven Bay Area zones on the basis of projections of future employee residence patterns and origin-destination patterns for non-work travel.

"- Trips to each of the seven regional zones were assigned to travel modes on the basis of modal splits (distribution of travel over the transportation modes, auto, transit, etc.) developed from the C-3 District surveys.

"At this stage of the process, the model forecasts total travel from the C-3 District. To complete the process and to allow analysis of the effect of travel demand from C-3 District development on the transportation network, the non-C-3 travel demand was analyzed. The total travel demand was calculated by summing C-3 District work and non-work travel and non-C-3 travel at sub-regional measuring points (called screenlines) located at or just beyond the San Francisco County Line (except for Muni and BART westbay service which were measured inside San Francisco, outside the downtown). The total travel demand was then compared to available service (capacity) at the screenlines

and operating conditions (demand-to-capacity ratios) were analyzed assuming planned improvements. The results of those analyses are summarized later in this section.

"For future years, the C-3 travel modelling process was modified to incorporate changes in travel patterns (modal split changes, different travel times), employee residence patterns and changes in land use patterns. The process incorporates the dynamic aspects of changing Bay Area travel patterns, rather than assuming a fixed, unchanging condition over time. An example of past changes in travel patterns can be seen in the amount of carpooling activity on the Bay Bridge. In 1977, peak average vehicle occupancy westbound on the Bridge was 1.7 persons per vehicle. By 1983, in response to increasing congestion and increased travel and parking costs, peak average vehicle occupancy westbound increased to 2.1 persons per vehicle./7/ The non-C-3 travel demand was forecast through the use of growth factors developed on the basis of historic trends in regional and sub-regional travel./8/

"The other process used to forecast cumulative transportation impacts starts with a list of cumulative office and retail development (net new office and retail space) proposed, approved or under construction in the greater downtown area. From that list, through the use of static employment densities for office and retail uses and established trip generation rates, forecasts of travel demand are made. The forecast travel is assigned to modes on the basis of static modal split factors (which are assumed not to change over time). The Transportation Guidelines for Environmental Impact Review: Transportation Impacts (Department of City Planning, September 1983, hereinafter Transportation Guidelines) describe the process and the data used to calculate transportation impacts from the list-based development.

"The current list, shown in Table C-2, [pp. A-5 to A-8 of this report] has about 19 million gross sq. ft. of net new office space and about 0.9 million gross sq. ft. of net new retail space. On the basis of the Transportation Guidelines analysis, the list-based development would generate approximately 80,000 p.m. peak-period person trip-ends, of which about 49,000 would occur in the p.m. peak hour. Table 5A shows a comparison of the projections of travel demand from the list-based analysis and from the Downtown Plan Draft EIR for

the year 2000. While the list contains development both inside and outside the C-3 District, the Downtown Plan Draft EIR makes specific projections only for C-3 District development, and the travel components shown in Table 5A are for the C-3 District only; therefore, for purposes of comparison, travel from the C-3 component of the list (about 13 million gross sq. ft. of net new office space and 0.4 million gross sq. ft. of retail space) has been analyzed for comparison with the projections from the Downtown Plan Draft EIR for Alternatives 1 to 5 and the Downtown Plan. As shown in Table 5A, travel demand from the Alternatives in the Downtown Plan Draft EIR ranges from Alternative 1 (about 17% higher than the Downtown Plan) to Alternative 4 (about 5% lower than the Plan). Although there is a range, the spread is within the level of accuracy of the transportation analaysis ($\pm$ 10%), and thus, statistically, the transportation impacts of the Alternatives are equivalent to those of the Downtown Plan.

"Several anomalies are apparent in the data shown in Table 5A. While the C-3 component of the list would generate about half as much travel as do the Downtown Plan and the five Alternatives, the list-based analysis yields projected travel demands within San Francisco (inside and outside the C-3 District) that exceed those generated by the Downtown Plan and the Alternatives.

The difference in total travel results in part from the different frames of the list and the Downtown Plan Draft EIR. The Downtown Plan Draft EIR established 1984 as the baseline year and 1990 and 2000 as target study years. Estimates of growth were made on the basis of projections for each of the target years for the range of alternatives. In contrast, the projects included on the cumulative list span a period from 1984 to sometime in the early or mid-1990's when completion of all projects on the list or a similar amount of square footage would be expected./9/ Thus, results of impact analyses using these two forecasting methods are not directly comparable.

"The variations in travel by trip purpose (work, other) and by travel mode (as shown in Table 5A) between the list-based method and the Downtown Plan Draft EIR method can be explained by differences in the methodologies and data bases used to forecast the travel demand. The list-based analysis employs

TABLE 5A: COMPARISON OF LIST METHOD AND ECONOMIC FORECAST METHOD - OUTBOUND P.M. PEAK-HOUR CUMULATIVE TRAVEL DEMAND FOR THE C-3 DISTRICT (person trip-ends)

Mode of Travel	3/10/84 List/a/	Downtown Plan (1984-2000)/b/	Alternative 1 (1984-2000)/b/	Alternative 2 (1984-2000)/b/	Alternative 3 (1984-2000)/b/	Alternative 4 (1984-2000)/b/	Alternative 5 (1984-2000)/b/
Work Person Trip-ends	22,100	41,400	47,600	46,200	44,400	39,100	39,700
Other Person Trip-ends	8,200	12,100	14,700	14,200	13,400	11,800	11,800
Total Person Trip-ends	30,300	53,500	62,500	60,500	57,900	51,000	51,600
Muni Northeast	900	1,600	1,700	1,600	1,600	1,700	1,700
Northwest	3,700	1,800	2,000	1,900	1,800	1,800	1,800
Southwest	3,100	1,100	1,100	1,000	900	800	800
Southeast	600	1,100	1,000	1,000	1,000	600	700
BART Transbay	4,500	11,800	13,300	13,100	12,700	11,300	11,300
Westbay	1,900	2,400	2,800	2,700	2,600	2,300	2,300
AC Transit	1,700	200	600	500	300	-100	-100
GGT Bus	1,100	3,200	3,700	3,600	3,500	2,700	3,100
Ferry	300	800	800	800	800	800	800
SamTrans	300	1,200	1,300	1,300	1,200	1,000	1,100
SPRR/CalTrain	500	1,800	2,000	1,900	1,800	1,700	1,700
Regional Auto/c/							
Golden Gate Bridge	370	410	630	590	540	390	370
Bay Bridge	960	1,250	1,550	1,540	1,510	1,060	1,110
Bayshore Freeway (U.S. 101)	420	470	650	620	590	400	400
Interstate 280	420	470	650	620	590	400	400

/a/ Travel from only those projects on the list that are located inside the C-3 District. The list also contains development located in the greater downtown area outside the C-3 District; travel from those projects has been included in the list-based travel shown in the remainder of this section.
/b/ Travel from the C-3 District only. The analysis used in the Downtown Plan Draft EIR assumes growth in regional travel that is not shown above; it is discussed in the remainder of this section.
/c/ Vehicle trip-ends; calculation made on the basis of 2.7 persons per carpool and 12 persons per vanpool. Person trip-ends on transit cannot be added to vehicle trip-ends to obtain total person trip-ends because of the varying numbers of persons per vehicle.

SOURCE: Environmental Science Associates, Inc.

single-use trip generation data to estimate total travel through the process of adding together the trip generation estimates from all the individual buildings on the list. These single-use trip generation rates do not incorporate any discounting factors to account for trips going from one building to another within the Downtown. Studies for the Downtown Plan Draft EIR have confirmed that there is considerable travel between land uses in the downtown area. Thus, the list-based analysis adds each trip as if it were a new trip in or out of the downtown.

The Downtown Plan Draft EIR travel demand model has refined the trip generation process by incorporating discounting factors that adjust the trip generation rates to give travel to and from the C-3 District as a whole; it does not include trips internal to the C-3 District. Thus, while the Downtown Plan Draft EIR process projects proportionately more work travel than does the list-based analysis, the Downtown Plan Draft EIR forecasts more closely resemble actual travel demand that would result from downtown development.

"The differences in distribution of travel among modes (shown in Table 5A) are the product of refinements in the regional distribution and modal split analyses in the Downtown Plan Draft EIR process. The list-based analysis assumes a static (unchanging over time) regional distribution and static modal splits. The Downtown Plan Draft EIR analysis has incorporated changes in both the regional trip distribution (reflecting projected availability of housing) and the modal splits (reflecting projected availability of roadway and transit capacity in the future).

"The list-based analysis yields more San Francisco travel (as shown by larger Muni numbers for the list-based analysis in Table 5A) than does the Downtown Plan Draft EIR analysis because the Downtown Plan Draft EIR analysis projects a declining availability of housing in the City. Thus, as the downtown work force increases, the percentage of workers living in San Francisco would decrease. The list-based analysis assumes that the percentage of workers living in San Francisco would remain constant over time and thus overestimates the numbers of future employees living in the City and underestimates the numbers of regional commuters.

"Other differences in travel among the modes, particularly regional auto and AC Transit, are the result of the refined modal split process used in the Downtown Plan Draft EIR. As the list-based analysis assumes that modal split remains constant over time, the list-based analysis is insensitive to the abilities of transit agencies and regional roadway systems to serve future demand. The Downtown Plan Draft EIR analysis has assumed that the modal split would change over time in response to the increasing levels of congestion at the regional screenlines (described in the Downtown Plan Draft EIR). Thus, because the Bay Bridge is at or near capacity in the p.m. peak hour eastbound, the Downtown Plan Draft EIR modal split projects a proportionately lower increase in auto demand to the East Bay than does the list-based analysis. Similarly, for AC Transit the Downtown Plan Draft EIR recognizes that current regional transit policy dictates no increases in AC Transit transbay service and thus, the ability of AC Transit to carry additional riders transbay will be restricted in the future. Use of this changing modal split is a refinement that allows the travel model to more accurately forecast travel demand and thus, the Downtown Plan Draft EIR results represent a more accurate level of projection than has been possible using methods and data available to date.

"Various other factors cause differences in the travel demand projections between the two approaches. The Downtown Plan Draft EIR and the Consultant's Report on Downtown Growth Management Alternatives (Environmental Science Associates, 1983) contain extensive discussion of the analyses and data used to forecast employment, land use (see sections cited above) and transportation demand (see Section IV.E and Appendix J).

"TRANSIT

"The transit agencies serving downtown San Francisco carry approximately 60% of the peak-period employee work travel, as well as about 20% of the peak-period other travel. (Figure 35, p. 95 of the DEIR shows Muni and BART routes in the project vicinity.) P.M. peak-hour and peak-period loadings on the local and regional transit routes were found to be near capacity for some of the routes in 1984 (see Table 6). The values shown in Table 6 are sums over the peak hour and the two-hour peak period. Within the peak hour, there would be periods of time when the loading ratios would be higher than those

TABLE 6: OUTBOUND REGIONAL TRANSIT DEMAND AND LEVEL OF SERVICE

Transit Agency	1984 Demand	1984 P/S/a/	1984 LOS/b/	DOWNTOWN PLAN (2000) Demand	DOWNTOWN PLAN (2000) P/S	DOWNTOWN PLAN (2000) LOS	DOWNTOWN PLAN (2000) Project Percent/c/	1984 + CUMULATIVE LIST Rounded Demand	1984 + CUMULATIVE LIST P/S	1984 + CUMULATIVE LIST LOS	1984 + CUMULATIVE LIST Project Percent/c/
P.M. Peak Hour											
Muni											
Northeast	7,100	1.16	D	8,800	1.05	D	0.1	8,700	1.04	D	0.1
Northwest	8,200	1.26	E	10,100	1.25	D	0.5	12,900	1.59	F	0.4
Southwest	13,500	1.45	E	16,600	1.42	E	0.3	17,500	1.50	E	0.2
Southeast	5,300	1.06	D	7,400	1.01	D	0.1	6,400	0.88	C	0.1
BART											
Transbay	16,100	1.53	F	27,900	1.42	E	0.3	21,900	1.12	D	0.4
Westbay	7,700	1.10	D	10,100	1.06	D	0.3	10,200	1.07	D	0.3
AC Transit	9,100	0.94	C	10,500	1.08	D	0.3	11,300	1.16	D	0.2
GGT Bus	5,300	1.00	C	8,500	0.91	C	0.3	6,800	0.73	B	0.4
GGT Ferry	800	0.57	B	1,500	0.38	A	0.3	1,100	0.28	A	0.4
Tiburon Ferry	200	0.40	A	300	0.60	B	0.3	200	0.40	A	0.4
SamTrans	1,900	1.12	D	3,100	1.19	D	0.3	2,300	0.88	C	0.4
CalTrain (SPRR)	3,100	0.61	B	4,900	0.79	C	0.3	3,800	0.61	B	0.3
P.M. Peak Period											
Muni											
Northeast	12,600	1.06	D	15,500	0.95	C	0.2	15,200	0.93	C	0.2
Northwest	13,100	1.13	D	15,300	1.05	D	0.5	20,600	1.41	E	0.4
Southwest	23,300	1.31	E	28,700	1.29	E	0.3	29,800	1.34	E	0.3
Southeast	9,100	1.00	C	12,100	0.88	C	0.2	11,000	0.80	C	0.2
BART											
Transbay	25,800	1.54	F	44,100	1.40	E	0.3	35,200	1.12	D	0.3
Westbay	11,300	0.80	C	14,600	0.77	C	0.3	15,400	0.81	C	0.3
AC Transit	14,000	0.95	C	17,000	1.16	D	0.3	17,500	1.19	D	0.3
GGT Bus	7,600	0.90	C	12,200	0.81	C	0.3	10,000	0.67	B	0.4
GGT Ferry	1,000	0.56	B	1,700	0.33	A	0.3	1,500	0.29	A	0.3
Tiburon Ferry	300	0.60	B	500	1.00	C	0.3	400	0.80	C	0.3
SamTrans	2,900	1.12	D	4,500	1.15	D	0.3	3,600	0.92	C	0.4
CalTrain (SPRR)	4,500	0.68	B	6,200	0.77	C	0.3	5,500	0.68	B	0.3

/a/ Passengers per Seat is the ratio of total demand to seated capacity.
/b/ Level Of Service is scale ranging from A to F that relates P/S ratios to passenger loading conditions on transit vehicles.
/c/ The percent of demand generated by the project.

SOURCE: Environmental Science Associates, Inc.

shown for the hour (peak-of-the-peak conditions). Individual transit vehicle loadings vary on a day to day basis because of fluctuations in ridership (demand) and because of variations in operating conditions caused by traffic congestion, equipment availability, and/or system breakdowns. Photographic examples of p.m. peak-hour loadings on Muni vehicles are shown in Appendix D, Figure D-1, pp. A-48 to A-50 in the DEIR.

"The level of service concept, similar to that developed for highway operations, has been applied to both bus and rail transit. Passengers per seat (i.e., total passengers divided by the number of seats) has been used as the measure of effectiveness to define the various level of service ranges. Table D-1, Appendix D, [p. A-10 of this report], shows the relationship between Level of Service and passengers-per-seat ratios for bus transit systems.

"During the p.m. peak hour in 1984, all of the transit agencies were found to be operating in Level of Service D or better with the exception of BART Transbay where conditions were found to be at Level of Service F, and Muni in the Northwest and Southwest corridors where operations were found to be in Level of Service E. Although BART is a rail transit service, its cars have a unique seating configuration. The ratio of total capacity to seated capacity for a BART car (about 1.5) is equivalent to the ratio for bus transit and, thus the bus transit Level of Service scale is applicable to BART. Level of Service F ("crush" or "jammed" loadings) on BART is in the range of 1.5 to 1.8 passengers per seat. Because BART operates on a centrally-controlled system, the "crush" loadings would not increase passenger loading times (which causes deterioration of service) as would be the case on a bus transit system; rather, the effects of "crush" loadings on BART would be reflected in increased passenger discomfort.

"The rail transit Level of Service scale is based on typical light rail transit systems for which total capacity is about 2.0 to 2.2 times seated capacity. The rail transit Level of Service scale would be applicable to Muni Metro. Muni Metro provides about 50% of the seated capacity to the Southwest corridor. Because Metro vehicles can accommodate higher loadings (a ratio of 2.0 passengers per seat) than buses or trolleys (a 1.5 ratio), the Level of

Service would be somewhat better than shown in Table 6. An exact estimate of Metro loadings is not possible without analysis of the Metro service separate from the remainder of Muni service to the Southwest; such analysis would be beyond the ability of the travel demand analysis to accurately predict over time.

"With regard to the Muni data presented in Table 6, the Muni routes have been aggregated on a corridor basis and thus include two-directional travel on some routes that serve the Northeast and Southeast corridors. The Muni numbers cannot be added over the corridors to get a total for the system. Neither can capacity be shifted from one corridor to another. For instance, capacity in the Northeast corridor depends, in large part, on capacity that serves the Southeast portion of the City. The 15, 19, 25, 30, 30X, 30AX, 30BX, 32, 41, 42, and 47 lines pass through the downtown in two directions. Service on the above lines is interdependent. Thus, increases or decreases in capacity on one of the above lines directly affect service in the opposite direction. Service to the Northeast and Northwest corridors are also interconnected as lines serving the Northwest must pass through the Northeast corridor and, thus, serve both areas. Muni ridership and capacity have been apportioned between both areas.

"Passengers-per-seat ratios are only one measure of adequacy of service. The constraints of operating on heavily used streets in and around the downtown cause transit vehicle bunching, loss of running time and missed schedules, all of which reduce service, reliability, and ultimately, capacity. In some respects, this would not be evident from simple quantitative analysis. In addition to these inefficiencies inherent within the transportation system, there are other factors which would affect overall transit capacities. These include variability in daily and seasonal ridership for which an absolute capacity must be available, as well as transit riders who remain uncounted because their transit trips both start and end beyond the screenlines used in this analysis. Daily fluctuations in fleet availability also affect system capacity.

"Further, policy considerations dictate operating conditions on certain lines where minimum headways have been established to maintain transit access to areas not warranted on the basis of ridership alone. When averaged together the ridership data from these lines may slightly distort overall ridership conditions.

"P.M. peak-period conditions on transit in 1984 were found to be equivalent to or better than peak-hour conditions. In some cases, where demand remains at peak-hour levels during the two-hour period, the passengers-per-seat ratios in the two-hour period are higher than in the one-hour period. This anomaly is the result of transit agencies providing express (or additional) service during the peak hour but not during the entire peak period. An example of this type of operation may be seen on BART, where three extra trains operate in transbay service in the peak hour but not in the rest of the peak period. Another factor involved is the distribution of demand (ridership) at uniformly high levels over the peak-period.

"Both transit demand and capacity have been assumed to increase during the period 1984 to 2000. The discussion of transit capacity increases for each agency are based on the Five-Year Plans and Capital Improvement Plans of the various transit agencies and are discussed in Appendix J of the Downtown Plan Draft EIR, pp. J.25-J.26; this material which is discussed below and summarized in Table 6 is incorporated by reference.

"Future transit demand and loadings for the Downtown Plan in the year 2000 and for 1984 plus the Cumulative List are shown in Table 6 for both the peak hour and the peak period. The total transit demand from the project would represent about 0.3% of the total travel demand on the transit carriers in the year 2000. Peak-hour transit demand on Muni in the year 2000 would increase about 25% over 1984 levels in the Northeast, Northwest and Southwest corridors. Muni demand in the Southeast corridor would increase about 40% between 1984 and 2000. Peak-hour demand on the other agencies would increase between 30% and 70% during the period 1984 to 2000.

"Peak-period increases in demand would be between 15% and 70% from 1984 to 2000. Overall peak-period transit travel would be expected to increase about 30% between 1984 and 2000. Peak-hour and peak-period passenger loadings would be worse than in 1984, although most systems would operate in acceptable conditions (Level of Service D or better). However, BART Transbay and Muni to the Southwest would be in Level of Service E during the peak hour and the peak period.

"Although the data in Table 6 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. As shown in Table 5A, total transit demand under Alternative 1 would be about 12% higher than under the Downtown Plan while transit demand from Alternative 4 would be about 9% lower than the Plan.

"It is important to note that the Five-Year Plan improvements for the transit systems are designed both to provide for future demand increases, and also to improve service levels from existing conditions. For new vehicles to expand system capacity rather than represent simple replacement, operating revenues would similarly need to be increased. During the year 2000 peak hour, Muni service to the Southwest and BART service Transbay would exceed the desirable passengers per seat ratios of 1.25 and 1.30, respectively./9a/ Although the transit demand in the two corridors in excess of the desirable loadings would be able to be accommodated under crowded conditions and thus would not be excess demand (that is, not beyond capacity), demand in excess of the desirable loadings would mean that additional transit service over that assumed to occur by 2000 would need to be provided to allow transit operations in the two corridors to meet the goals set by Muni and BART. To meet the goal of 1.25 passengers per seat in the peak hour, Muni would have to increase service by about 14% in the Southwest corridor over the amount of service assumed to occur in 2000. To meet the goal of 1.30 passengers per seat, BART would have to provide a transbay service increase of 14% over the amount of service assumed to occur by 2000.

"If transit service were not increased beyond the amounts assumed to occur by the year 2000 in the Downtown Plan Draft EIR, transit operations (in terms of passenger comfort) would be slightly better than 1984 conditions. Peak-hour and peak-period passengers-per-seat ratios would be lower than 1984 ratios even though service (in some corridors) has been assumed to increase as much as 80% between 1984 and 2000.

"Alternatively, if the Downtown Plan's Goals regarding increased transit use are achieved, and the proposals in the Plan regarding transit service improvements were to be fully developed and in place, the impacts on transit agencies would be less than described above. If the Goals were achieved, transit agencies would experience greater levels of demand than under this analysis but overall passenger loadings would be lower (and within desirable levels) because of increased transit service availability that would come about if the proposals stated in the Plan are developed. Section V, Mitigation Measures [p. 31 of this report], contains a measure that would provide the additional transit service required to mitigate the above impacts.

"Also shown in Table 6, is an analysis of the conditions that would result from adding the travel from the Cumulative List to the 1984 base data, as is specified in the Transportation Guidelines. While not specifically comparable, these estimates calculated by adding the travel from the Cumulative List to the 1984 base data produce similar results to those from the Downtown Plan, although the overestimation of San Francisco travel is present in the list-based results, as explained above.

"PEDESTRIAN MOVEMENTS

"The primary pedestrian entrance to the project would be on Montgomery St. and would provide access to the project lobby and elevators serving the upper-floor offices. Entrances to the ground floor retail space would be located on Montgomery, Sacramento, and Commercial Sts. The project would generate about 200 pedestrian pte during the noon 15-minute period, and about 140 pedestrian pte during the p.m. peak 15-minute period.

"Operating conditions on sidewalks and crosswalks have been categorized into a Pedestrian Flow Regimen, which relates density of pedestrians in a specific time period (pedstrians per foot of clear sidewalk width per minute) to quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk)./9b/ Table D-2 [p. A-11 of this report], shows the relationships between flow rates, walking speed, path choice, and interactions between pedestrians for each flow regime. Figure D-2, pp. A-51 - A-52 of the DEIR, shows photographs of sidewalk conditions for each flow regime. Typically, an upper limit for desirable conditions is 14 pedestrians per foot per minute (p/f/m), defined as crowded, although conditions as high as 18 p/f/m, a congested condition, are possible with some conflicts among pedestrians./9b/

"Table 7 compares existing pedestrian flows with predicted pedestrian volumes on Sacramento St. at the intersection with Montgomery St. in the year 2000. Sacramento and Montgomery St. sidewalks currently operate in impeded conditions during the noon 15-minute period, and in unimpeded conditions during the 15-minute p.m. period. The crosswalk across Montgomery St. operates in impeded conditions during the noon period and in unimpeded conditions during the p.m. period. The crosswalk across Sacramento St. operates in impeded conditions during both the noon and p.m. periods.

"Sidewalk operations in the year 2000 would be in the impeded range during both the noon hour and the p.m. peak hour. The project pedestrian traffic would represent about 20% of the pedestrian volumes on the Sacramento St. sidewalk during the noon hour and the p.m. peak hour. Pedestrian flows from the project would represent about 50% of the pedestrian volumes on the Montgomery St. sidewalk during the noon hour and about 40% during the p.m. peak hour. This increase in pedestrian traffic in the area might increase the number of pedestrians crossing Montgomery St. at the intersection with Commercial St., where there are no marked crosswalks. Such crossings would increase the potential for vehicle-pedestrian accidents at this location.

"The crosswalks at the intersection of Sacramento and Montgomery Sts. would operate in the higher ranges of impeded conditions during the noon hour in the year 2000. During the p.m. peak hour, the crosswalks would operate in the

TABLE 7: PEAK PEDESTRIAN VOLUMES AND FLOW REGIMEN AT SACRAMENTO AND MONTGOMERY STREETS

	1984		DOWNTOWN PLAN (2000)			1984 + CUMULATIVE LIST		
	p/f/m/a/	Flow Regimen/b/	p/f/m	Flow Regimen	Project Percent	p/f/m	Flow Regimen	Project Percent
			NOON PEAK/c/					
Sacramento St. Sidewalk/d/	2.5	Impeded	3.3	Impeded	17%	3.4	Impeded	17%
Montgomery St. Sidewalk	2.1	Impeded	2.7	Impeded	50%	5.4	Impeded	25%
Montgomery St. Crosswalk	2.7	Impeded	3.6	Impeded	21%	4.0	Impeded	19%
Sacramento St. Crosswalk	3.7	Impeded	4.9	Impeded	26%	7.5	Constrained	17%
			P.M. PEAK /c/					
Sacramento St. Sidewalk	1.7	Unimpeded	2.2	Impeded	18%	2.3	Impeded	18%
Montgomery St. Sidewalk	1.7	Unimpeded	2.2	Impeded	43%	3.9	Impeded	24%
Montgomery St. Crosswalk	1.7	Unimpeded	2.2	Impeded	24%	2.7	Impeded	20%
Sacramento St. Crosswalk	2.5	Impeded	3.2	Impeded	28%	4.7	Impeded	19%

/a/ Pedestrians per Foot of effective sidewalk width per Minute.
/b/ See Table D-2 for description of pedestrian flow regimens.
/c/ Peak 15-minute periods.
/d/ All sidewalk segments and crosswalks are along project frontage.

SOURCE: Environmental Science Associates, Inc.

middle range of impeded conditions. The project pedestrian flow in the Montgomery St. crosswalk would be about 20% to 30% of the overall flow during both the noon hour and the p.m. peak hour.

"Although the data in Table 7 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. Although not shown in Table 5A, pedestrian travel demand is closely related to total travel demand because the majority of trips on the primary modes shown in Table 5A begin or end as pedestrian trips at a building. Thus, on the basis of total travel demand, Alternative 1 would be about 17% higher than the Downtown Plan while Alternative 4 would be about 5% lower than the Plan.

"Also shown in Table 7 are the results of adding travel from the Cumulative List to the 1984 base data. While the results appear to be similar to those from the Downtown Plan Draft EIR, the list-based results are not comparable for the reasons stated above, particularly because the list-based travel would occur sooner than the year 2000.

"TRAFFIC

"The analysis of traffic impacts has been conducted on two levels; one level of analysis considered impacts at the regional screenlines, the second level of analysis considered impacts at intersections in and near the downtown.

"Analysis of traffic conditions at the regional screenlines has been conducted for both the p.m. peak hour and the two-hour p.m. peak period. A.M. peak traffic conditions at the regional screenlines have the effect of metering the amount of traffic that reaches the downtown from outside of the City. This analysis has considered p.m. peak conditions. P.M. conditions are usually most severe on both freeways and streets within San Francisco, whereas a.m. peak conditions are most severe at locations outside of the City.

"Traffic demand at the regional screenlines in 1984 (see Table 7A) during the p.m. peak hour were found to use between 90% and 100% of the available capacity on the freeways and bridges. Although the capacity of the Bay Bridge

is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour demand shown in Table 7A represents the effective capacity. The demand figures shown in Table 7A for 1984 for the one-hour and two-hour periods are averages of several days and, thus, values for individual days may be different than the average.

"Peak-hour freeway operating conditions in 1984 were found to be generally in Level of Service D to E conditions which would indicate unstable flows in the 35 mph to 45 mph range. Table D-4, Appendix D [p. A-14 of this report], shows the Level of Service for freeway operations. Peak-of-the-peak conditions within the peak hour would be expected to be worse than the hourly conditions because of surges in traffic demand during the peak hour. Conditions during the peak-period at the screenlines would be similar to those experienced during the peak-hour.

"As shown in Table 7A, demand during the peak hour in the East Bay and Peninsula corridors would be expected to increase about 15% between 1984 and 2000. Peak-hour demand in the North Bay corridor would increase by about six percent between 1984 and 2000. The project travel demand, about 110 p.m. peak-hour vehicle trip ends, would represent about 0.1% of the total demand in each corridor in the year 2000. Both the East Bay and Peninsula corridors would have excess peak-hour demand that would not be met during the peak period./9c/ The North Bay corridor would have excess demand in the peak period. Excess auto demand would result in either a spreading of the demand into the hours adjacent to the peak period or in increased transit and ridesharing use should additional transit service (beyond that assumed to occur by the year 2000) or incentives be provided.

"Operating conditions at the regional screenlines would be at or near capacity in Level of Service E. Traffic flow conditions would be expected to be very unstable and could experience temporary flow interruptions throughout the peak-period. Peak-of-the-peak conditions would be prevalent during the peak hour and may extend into the peak period.

TABLE 7A: OUTBOUND REGIONAL AUTO DEMAND

Regional Auto Corridor	Capacity	1984 Demand	DOWNTOWN PLAN (2000) Demand	DOWNTOWN PLAN (2000) Project Percent	1984 + CUMULATIVE LIST Demand	1984 + CUMULATIVE LIST Project Percent
P.M. Peak Hour						
Bay Bridge (I-80)	9,000	8,540	9,790	0.2	9,480	0.?
Golden Gate Bridge (US-101)	7,200	6,740	7,150	0.1	7,100	0.1
US-101 (south of Harney Way)	8,000	7,390	8,400	0.1	7,800	0.1
I-280 (between Alemany Blvd. and San Jose Avenue)	8,000	7,610	8,650	0.1	8,020	0.1
P.M. Peak Period						
Bay Bridge (I-80)	18,000	17,880	19,330	0.1	18,460	0.1
Golden Gate Bridge (US-101)	14,400	13,870	14,850	0.1	15,380	0.1
US-101 (south of Harney Way)	16,000	14,200	16,530	0.1	14,870	0.1
I-280 (between Alemany Blvd. and San Jose Avenue)	16,000	13,620	15,890	0.1	17,290	0.1

SOURCE: Environmental Science Associates, Inc.

"As shown in Table 7A, the list-based cumulative analysis, while not comparable to the year 2000 data, produces similar estimate of future demand. The results reflect the tendency of the list-based method to overestimate regional auto travel.

"The streets that serve the project as feeders to or from freeway ramps (Clay and Washington Sts.) are points of maximum automobile traffic congestion in the Financial and Downtown Districts. Conditions on these streets were assumed to represent the "worst case" or greatest traffic impacts of the project.

"Impacts from the project on other streets would be less, because project traffic on them would be more dispersed. Routes of drivers going to garages were assumed to be sufficiently dispersed so that they would have no measurable effect on traffic volumes on the streets adjacent to the project. Project impacts at the intersections closest to the project site would result primarily from service-vehicle and pedestrian traffic and from traffic using the proposed 23 on-site parking spaces. The traffic volumes from the project would not be detectable against the background of future traffic growth from development in the downtown at the intersections adjacent to the project.

"Traffic operations at intersections near freeway ramps serving the project site vicinity are shown in Table 8. During the a.m. peak hour, the intersection of Battery and Washington Streets operates in Level of Service B conditions. The intersection of Battery and Clay Streets has Level of Service C conditions during the p.m. peak hour. Level of Service descriptions are shown in Table D-3 [p. A-13 of this report].

"Peak-hour conditions would be expected to deteriorate at both of the intersections by the year 2000. Expanded areas of traffic congestion would disrupt surface Muni operations. If the mitigation measures for transportation are implemented, the intersection operating conditions would be improved.

TABLE 8: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a/

Intersection	1984 V/C	1984 LOS	DOWNTOWN PLAN (2000) V/C	DOWNTOWN PLAN (2000) LOS	1984 +CUMULATIVE LIST V/C	1984 +CUMULATIVE LIST LOS
Battery & Washington Sts./b/	0.65	B	0.71	C	0.79	C
Battery & Clay Sts.	0.73	C	0.85	D	0.83	D

/a/ Level of Service descriptions and relationship to V/C ratios are shown in Table D-3.
/b/ Data for this intersection is for the a.m. peak hour because Washington St. carries traffic from an off-ramp from the Embarcadero Freeway. During the p.m. peak hour, volumes on Washington St. are less than half the a.m. peak hour volumes.

SOURCE: Environmental Science Associates, Inc.

"As shown in Table 8, the list-based analysis yields similar Level of Service intersection conditions. While similar to the results of the Downtown Plan Draft EIR results, the list-based results are not comparable for the reasons stated above, particularly because the list-based analysis overestimates auto use through the assumption of an unchanging modal split.

"Although the data in Table 7A and Table 8 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. As shown in Table 5A, regional traffic demand under Alternative 1 would be about 34% higher than under the Downtown Plan while regional traffic demand from Alternative 4 would be about 13% lower than the Plan.

"PARKING

"The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District./9d/ The

short-term parking demand, while representing about 25% of the equivalent daily demand, is about 65% of the daily vehicle travel. Although the equivalent daily demand would leave about 10% of the parking supply vacant, surges in short-term demand (more travel in one period than in another period) can cause temporary localized overloads of parking facilities within various portions of the downtown, even though parking may be available elsewhere in the downtown.

"The project would provide 23 on-site parking spaces and would not remove any existing spaces. The proposed parking spaces would be located in the basement level, with access from Sacramento St. via a 12-foot-wide one-way, signal-controlled ramp. The project would create a long-term parking demand of 230 spaces and demand for 10 short-term spaces for a total demand of about 240 equivalent daily spaces. There would be an on-site deficit of about 220 spaces.

"The City Master Plan discourages new parking facilities and encourages the conversion of long term spaces to short term use. The project would be not consistent with the policy to provide only replacement parking as new parking would be provided by the project. If the project were to provide only short-term spaces the project would be in conformance with the policy to provide only short-term parking in the Automobile Control Area (Transportation Element, Downtown Transportation Plan, Policies 2, 3, 6 and 8, pp. 39-41).

"The Downtown Plan "encourage[s] short-term use of existing parking facilities within and adjacent to the downtown core by converting all-day commuter parking to short-term parking in areas of high demand or to car/van pool parking where short-term parking demands are low" (Downtown Plan, p. 133). The project would be consistent with this policy to the extent that short-term parking were provided on the site.

"The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the year 2000 under the Downtown Plan, an increase of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent less than 1% of the total demand from the C-3 District. The parking supply has been assumed to be

about 51,000 spaces. There would be a parking deficit of about 6,000 spaces in the year 2000 if vehicular demand occurs as projected. However, as shown in Table 7A, the analysis for the year 2000 forecasts excess auto demand in the peak hour and the peak period. If the excess demand is accommodated on transit or ridesharing; then the overall parking demand would decrease from the above estimate by about 2,300 spaces.

"Alternatively, if the Goals of the Downtown Plan are met, total parking demand in the year 2000 would be about 48,100 equivalent daily spaces, an increase of six percent over 1984. If the Goals were achieved, there would not be a parking deficit.

"The list-based analysis shows future demand for 11,400 spaces from projects in the C-3 District, which would be a total demand of 56,700 spaces. While similar to the 58,000 space (unmitigated) demand from the Downtown Plan, the list-based demand is not comparable for the reasons stated above, in particular because the list-based analysis assumes a static modal split and thus overestimates future auto demand.

"Although the parking demands discussed above are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. Although not shown in Table 5A, parking demand from the C-3 District under Alternative 1 would be about 4% higher than under the Downtown Plan, while Alternative 4 would be about 1% lower than the Plan.

Footnotes /3/ through /9/ on p.108 of the EIR are replaced with the following:

"/3/ San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. of office space and 150 pte per 1,000 gross sq. ft. of retail space were used to generate travel from the project. The two trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred

to as "linked trips." The September 1983 Transportation Guidelines are on file and available for public review at the Office of Environmental Review, 450 McAllister Street, Fifth Floor.

"/4/ The percentage of travel occuring in the peak period and the peak hour are from the Transportation Guidelines (see Note 3). Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area) travel. The outbound travel consists of all of the work-related travel and half of the other (non-work) travel.

"/5/ San Francisco Department of City Planning, Office of Environmental Review, Draft Environmental Impact Report for The Downtown Plan, EE81.3, March 16, 1984. This document is an analysis of projected growth in the C-3 District to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the Draft EIR includes projections of future modal splits for work and other (non-work) travel for the p.m. peak period, peak hour and daily time periods. This document is on file with and available for public review at the Department of City Planning, 450 McAllister Street, Fifth Floor.

"/6/ The Downtown Plan Draft EIR contains about 50 pages of text devoted to the description of transportation impacts in the greater downtown area, as well as an additional 30 pages of text describing transportation mitigation measures. The information in this EIR on the 505 Montgomery Street project is not intended to be a comprehensive summary of the transportation analysis in the Downtown Plan Draft EIR, but summarizes portions relevant to the 505 Montgomery Street project and its contribution to cumulative impacts. For details and assumptions used to arrive at the data and results presented in the Downtown Plan DEIR, see Sections IV.E, Transportation Setting and Impact, and V.E, Transportation Mitigation, and Appendix J, Transportation and Circulation Analyses and Methodologies, of the Downtown Plan Draft EIR, which are incorporated by reference into this report and summarized in the text as appropriate.

"/7/ Data are from Traffic Survey Series A-48 and MA-60, Spring 1977 and Spring 1983, Metropolitan Transportation Commission.

"/8/ The analysis of historic trends in travel patterns is from the following sources: Metropolitan Transportation Commission, Travel Observations of the Bay Bridge Corridor, October 21, 1981. Homburger and Dock, Trends in Traffic Patterns at the Bay Bridge and Caldecott Tunnel, U.S. Department of Transportation, DOT-BIP-WP-32-3-77, July 1977; telephone survey of 500 drivers conducted in April 1980 by Golden Gate Transit, data supplied by Alan Zahradnik, Transportation Planner, on February 16, 1983; Office of the Auditor-Controller, Comparative Record of Traffic for the Month of November, May 27, 1937 through November 30, 1982, Golden Gate Bridge, Highway and Transportation District; San Francisco Municipal Railway Planning Division, Projections of Future Muni Demand and Vehicle Requirements, October 1982; San Mateo County Transit District, SamTrans Five-Year Transportation Development Plan: 1983-1988, April 1983; California Department of Transportation, CalTrain Caltrans/Southern Pacific Peninsula Train Service Five-Year Plan 1983-1988, July 1983; and Traffic volume counts from Department of Public Works, Bureau of Engineering, Division of Traffic Engineering and from 1983 San Francisco Cordon Count, JHK and Associates, July 1983.

"/9/ See Downtown Plan Draft EIR, pp. II.9-II.11, for a comparison of the cumulative list projections with those of the Downtown Plan Draft EIR.

"/9a/ San Francisco Municipal Railway, Short-Range Transit Plan 1983-1988, July 1983. Bay Area Rapid Transit District, Short Range Transit Plan for the Five-Year Period July 1983 Through June 1988, August 1983.

"/9b/ Pushkarev and Zupan, Urban Space for Pedestrians, MIT Press, 1975, p. 85-117

"/9c/ Table IV.E.4, p. IV.E.36, of the Downtown Plan Draft EIR contains discussion of the implications of excess demand at the regional screenlines.

"/9d/ The parking survey data and other supporting calculations and data used in the Downtown Plan Draft EIR transportation impact analysis are on file and available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, Fifth Floor."

MITIGATION

The following is added to "Other Mitigation Measures" on p. 141 of the DEIR.

"The City could adopt and implement the transportation improvements described in the Downtown Plan. Should the Downtown Plan not be implemented, the City could act to implement the transportation mitigation measures described in Section V.E, Mitigation of the Downtown Plan Draft EIR. The Downtown Plan is presently under review: action on the Plan is expected by the City Planning Commission during Summer 1984. If approved by the Commission, some of the Implementing Actions would need approval by other decisionmakers, as described in Section V.E. of the Downtown Plan Draft EIR."

B. AIR QUALITY

The following text and tables replace the Air Quality impact section on pp. 109-111 of the DEIR:

"Upon completion, the project would affect air quality in two ways: emissions would be generated by project-related traffic and by combustion of natural gas for space and water heating. Transportation sources would account for over

95% of project-related emissions. Projected daily emissions of pollutants in 1990 from project-generated traffic, and from cumulative development traffic, based on the March 10, 1984 list of Cumulative Office Development in Downtown San Francisco [see pp. A-5 to A-8 of this report], are shown in Table 10, [p. 32 of this report]. These emissions are also compared in the table to emissions projected for C-3 District development by the Downtown Plan Draft EIR, and to total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan.

TABLE 10: PROJECTED DAILY POLLUTANT EMISSIONS

	Emissions (tons per day) /a/					
		Cumulative	Downtown Plan/c/		Bay Area/d/	
Pollutant	Project 1990	List 1990/b/	1990	2000	1990	2000
Carbon Monoxide	0.120	17.0	6.8	6.6	1,952	1,883
Hydrocarbons	0.010	1.4	0.6	0.6	428	428
Nitrogen Oxides	0.012	1.8	0.8	0.8	558	610
Sulfur Oxides	0.002	0.2	0.1	0.1	194	233
Particulates	0.018	2.7	1.1	1.3	562	649

/a/ Project, Cumulative List, and Downtown Plan emissions calculated using BAAQMD, EMFAC6C vehicular emission factors. Emissions of CO, HC, and NOx include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust entrained from roadway surfaces.
/b/ Incremental emissions of dowtown-area development based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 [Table C-2, pp. A-5 - A-8 of this report].
/c/ Incremental emissions of C-3 District development, per Downtown Plan Draft EIR, Table IV.I.2, p. IV.I.12.
/d/ Accumulative total emissions of Bay Area development, per ABAG, BAAQMD, MTC, 1982 Bay Area Air Quality Plan, pp. 42, 53, and 112.

SOURCE: Environmental Science Associates, Inc.

"Motor vehicle trips associated with downtown development would emit more nitrogen oxides (NOx) than hydrocarbons (HC), both of which are chemical precursors of ozone, while emissions from building natural gas combustion would consist primarily of NOx. On the basis of the LIRAQ ozone simulations conducted for the 1982 Bay Area Air Quality Plan, NOx emissions in excess of

HC emissions could lead to a slight decrease in peak ozone concentrations in the Bay Area. This relationship between NOx and HC emissions would hold both under the cumulative list scenario and the Downtown Plan scenario shown in the table. Thus, emissions of HC and NOx generated by the project and by cumulative development would not increase the Bay Are ozone concentrations which would otherwise occur.

"It is possible, however, that excess NOx emissions could increase ozone and/or nitrogenous oxidant concentrations further downwind, outside the Bay Area. In addition, incremental NOx emissions generated by the project and by cumulative development could lead to violations of the NO_2 standard with concomitant health effects; could reduce visibility; (or to a relatively small extent due to the small magnitude of the increase and to dilution over time and distance), could increase acid rain further downwind, outside the Bay Area.

"A special monitoring program, called a "Hotspot" program, was conducted near the intersection of Washington and Battery Sts. during the winter of 1980-81, approximately four blocks northeast of the proposed project. The observed high eight-hour average carbon monoxide (CO) concentration was 10 ppm, which is 1 ppm more than the applicable air quality standard of 9 ppm./1/ The highest one-hour average concentration was 15 ppm, which is 5 ppm lower than the applicable state standard. In 1982, a street-level average CO maximum of 14.5 ppm was measured at the monitoring station at 939 Ellis St., near Van Ness Ave. These data indicate that some locations in San Francisco, particularly those near streets with high traffic volumes and congested traffic flows, may experience violations of CO standards under adverse meteorological conditions.

CO concentrations are predicted to be less in 1990 and subsequent years than shown for 1984. In 1990 traffic volumes in the downtown area would increase by about 8%, area-wide, over 1984 volumes. However, in 1990 the average vehicle is expected to emit 32% less CO than in 1984 due to ongoing state and federal emissions controls. The projected effects of state and federal emission controls on new vehicles (and the retirement of older, polluting vehicles) would more than offset the increases in traffic volumes and traffic congestion.

"Curbside CO concentrations at selected intersections affected by project-generated traffic, and by cumulative development traffic (based on the March 10, 1984 cumulative list), were projected for worst-case conditions (poor dispersion meteorology), and are compared with the ambient standards in Table 11, [p. 34 of this report]. These concentrations are also compared in the table to concentrations projected for C-3 District development by the Downtown Plan Draft EIR. No excesses of the applicable CO standards are projected at either location analyzed, under any scenario.

"CO concentrations within the project's parking garage would be maintained within standards by a ventilation system controlled by CO monitors.

TABLE 11: PROJECTED WORST-CASE CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

		Concentrations (ppm) /a/			
Intersection	Averaging Time	1984	Cumulative List 1990/b/	Downtown Plan/c/ 1990	2000
Battery & Washington	1-hour	13.0	10.1	9.5	8.3
	8-hour	8.9	6.7	6.5	5.8
Battery & Clay	1-hour	13.0	10.1	9.5	8.3
	8-hour	8.6	7.0	6.7	6.0

/a/ Calculations for all four scenarios were made for worst-case (poor dispersion) meteorology, using the modified linear rollback method. Background concentrations were calculated to be 7.3 ppm for one hour and 5.6 ppm for eight hours in 1984, 5.4 ppm for one hour and 4.1 ppm for eight hours in 1990, and 4.8 ppm for one hour and 3.7 ppm for eight hours in 2000. No excesses of ambient standards are projected. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour state and federal standard is 9 ppm.
/b/ Based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 [Table C-2, pp. A-5 - A-8 of this report].
/c/ Downtown Plan Draft EIR, Table IV.I.3, p. IV.I.16.

SOURCE: Environmental Science Associates, Inc.

"Emissions of TSP generated by the project and by cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concomitant health effects and reduced visibility.

"Emissions of SOx generated by the project and by cumulative development would probably not bring San Francisco's SO_2 concentrations significantly closer to violating the standard.

"The project, and other downtown development on the cumulative list or under the Downtown Plan, would not directly conflict with the pollution reduction strategies recommended by the 1982 Bay Area Air Quality Plan. These strategies consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. In addition, emissions associated with the project and with other downtown development are not projected by this EIR or by the Downtown Plan Draft EIR to increase ozone concentrations or to result in violations of CO standards, and thus would not indirectly conflict with the objectives of the 1982 Bay Area Air Quality Plan.

"Alternative 1 to the Downtown Plan (covered in the Downtown Plan Draft EIR) would generate about 38% more emissions in 2000 (from development between 1990 and 2000) than would the Downtown Plan. Alternative 4 would generate about 7% less emissions than would the Downtown Plan. Emissions generated by Alternatives 2, 3, and 5 would fall within this range. The types of air quality impacts under these alternatives would be the same as those under the Downtown Plan; their magnitudes would vary in proportion to their differences in emissions.

"The pollutant emissions and CO concentrations shown in Tables 10 and 11 were projected for 1990 on the basis of two different sets of future growth assumptions, with differing results. In one case, a list of specific projects proposed, approved, and under construction was used (the list of Cumulative Office Development in Downtown San Francisco, March 10, 1984). In the other case, the employment growth trend approach of the Downtown Plan EIR was used, and those projections presented. In both cases, the method for the air

quality analyses was identical. However, the results using projected cumulative development are not directly comparable with those from the Downtown Plan DEIR for several reasons:

"First, it is reasonable to assume that the projected cumulative development on the list would be completed and occupied sometime between 1990 and 2000, rather than in either of those two analysis years which were used in the Downtown Plan Draft EIR. The pollutant emissions and CO concentrations were calculated for 1990 using the cumulative list, even though those projects are not expected to be completed until the mid-1990s, in order to provide the possibility of some comparison with the Downtown Plan Draft EIR results. However, this has the effect of artificially increasing the cumulative list results, because average-vehicle emission rates will decline with time, as a result of federal and state controls.

"Second, the transportation analysis used for the Downtown Plan Draft EIR differs from that used for the cumulative list, as described in the Transportation section of this report [pp. 6-14]. Briefly, these differences include the fact that a cumulative list-based analysis assumes that the same proportion of new employees would commute by private auto as is currently the case. In contrast, the Downtown Plan Draft EIR analysis projects a shift of commuters from driving alone to carpool and transit, because commute routes such as the Bay Bridge are already at or near capacity and could not accommodate all of the vehicles that would be used if the proportion of persons driving alone to work remained constant.

"Other reasons for the differences include the use in the cumulative list analysis of a constant regional distribution of trips, whereas the Downtown Plan Draft EIR forecasts a declining percentage of new employees residing in San Francisco, and the lack in the cumulative list approach of discounting factors to account for trips between individual projects within the Downtown (see the preceding Transportation section of this Supplement).

"Thus, total (regional) vehicle-miles-travelled and the resulting pollutant emissions projected using the cumulative list approach are considered artificially high. On a local intersection basis, traffic volumes and the

resulting CO concentrations might or might not be higher with the cumulative list approach, depending on the particular location. This is because the cumulative list method does not distribute traffic on all the same streets in the same proportions as does the Downtown Plan Draft EIR method. For the two intersections analyzed here, the projected traffic volumes and CO concentrations are higher with the cumulative list approach.

"NOTE - Air Quality

/1/ Association of Bay Area Governments, 1982, AQMP Tech Memo 40, 'Results of the 1980/1981 Hotspot Monitoring Program for Carbon Monoxide,' Berkeley, California."

C. ENERGY

The following text replaces the third paragraph on p. 117 of the DEIR through the end of the first partial paragraph on p. 118.

"The Department of City Planning predicts future power consumption, based on the electricty use of 18 recently constructed buildings in the downtown area, to be about 18 kWh per sq. ft. per year./7/ This number includes an estimate of the base power consumption of the building core, such as air circulation, cooling, mechanical and lighting loads, as well as power demands due to increased use of electronic office machincs including copiers, computers and word processors, which are generally in operation the entire work day. Yearly estimated electrical consumption for the projected 19 million sq. ft. of additional office space at the time of buildout of the March 10, 1984, list of projected Cumulative Office Development in Downtown San Francisco would be approximately 340 million kWh of power per year. Previous electrical consumption estimates in EIRs did not include power used by office machinery.

"PG&E, in examining its ten year load growth projections for San Francisco, believes that growth rates of net new office space in the downtown area will diminish in the next decade from the historic figure of 1.5 million sq. ft. per year to between 1 million and 1.2 million sq. ft. per year./7a/ The

utility company's current analysis of a typical office building yielded an annual kilowatt hour consumption of about 17 kWh per sq. ft. This agrees with the City's estimate (noted above), within the limits of estimation methodology. Using these figures, total increased energy demand for the next decade would be approximately 200 million kWh of electricty per year, or less than half of demand projected using the cumulative list. The lower PG&E prediction is largely due to its lower estimation of future development.

"Projections of energy use discussed in the Downtown Plan Draft EIR indicate an increase of about 210 million kWh of electricity per year betwen 1984 and 1990 as a result of all new development occuring in the C-3 District. From the period 1990 to 2000, electrical consumption rates would increase annually by 330 to 350 million kWh above present figues, or 120 million to 140 million kWh above the increases estimated for the 1984-1990 period. Both these estimates are for growth that would occur under the Downtown Plan scenario./7b/ Energy requirements for development that would occur with the Alternatives proposed in the Downtown Plan Draft EIR predict an increased demand of between 300 million kWh per year to 500 million kWh per year between 1984-2000./7c/

"Estimates referred to in the Downtown Plan Draft EIR are not directly comparable to those estimates made by applying a kWh/sq. ft./yr. generation factor to the square footage of projected cumulative development (List method) for two reasons. First, the energy projections made using the List method estimate energy demand at the time of full buildout (mid 1990's) rather than during the 1984-1990 and 1990-2000 time periods as in the Downtown Plan Draft EIR and, secondly, about 75% of the projects on the March 10, 1984, list of projected Cumulative Office Development in Downtown San Francisco fall within the C-3 District boundary, which means the list method estimates energy consumption for a larger area than the Downtown Plan Draft EIR.

"The PG&E projection cannot be compared to the projections in the Downtown Plan Draft EIR because they cover different time periods. A comparison of the Downtown Plan and PG&E estimates for electricity use in downtown San Francisco for the last decade of the century is currently being prepared by PG&E in a report to be released later this year.

"Natural gas consumption for new office development would be less than current demand which include consumption in older, less energy-efficient buildings. The Department of City Planning estimates that natural gas use by new buildings in the year 2000 would be 11 cu. ft./sq. ft./yr./7/ The City Planning Department further estimates that between 1984 and 1990 gas consumption will grow by 300 million cu. ft. per year. PG&E is currently assessing projected demands for the San Francisco area in a report to be released later this year.

PG&E plans to meet increased San Francisco energy demands to the year 2000 are discussed on pp. IV.G12-14 of the Downtown Plan Draft EIR, which are hereby incorporated by reference."

The following footnotes replace Footnote /7/ on p. 119 of the DEIR:

"/7/ Downtown Plan DEIR, Appendix N, Footnote 3, p. N.8.

/7a/ Ken Austin, Commercial-Industrial Marketing Supervisor, Pacific Gas and Electric Company, letter, March 23, 1984. Available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St., 5th floor, San Francisco.

/7b/ Downtown Plan DEIR, pp. IV.G.1 - IV.G.17

/7c/ Downtown Plan DEIR, pp. VII.G.1 - VII.G.4."

D. EMPLOYMENT, HOUSING AND FISCAL FACTORS

The following text replaces the paragraph beginning on p. 42 and ending on the top of p. 43 of Section III., Environmental Setting of the DEIR:

"Existing and Proposed Office Space in San Francisco

"San Francisco is the major office center in the Bay Area, with approximately 60.6 million gross sq. ft. of office space at the end of 1982./1a/ The C-3 district had 55.3 million sq. ft. of office space in 1981 and currently has about 62.1 million sq. ft. of office space in 1984./1b/ Historical data

indicates that office space was added at average rates of 1.5 million sq. ft. per year during the 1970s and 2.4 million sq. ft. per year from 1980 through 1982./1a/

"The projects under review, approved or under construction as of March 10, 1984 include projects in the greater downtown area outside of the C-3 District [see Appendix C-2, pp. A-1 to A-8 of this report]. An additional 5.5 million gross sq. ft. of net new office space will be added when the buildings under construction are finished, and another 4.8 million sq. ft. of net new office space has been approved but is not yet under construction. Another 8.7 million sq. ft. would be added if the projects under formal review, as of March 10, 1984, were eventually built. This total of about 19.0 million gross sq. ft. of net new office space (under formal review, approved, under construction, or completed but not fully occupied as of March 10, 1984) includes the 505 Montgomery St. project, listed as adding about 300,700 gross sq. ft. of net new office space. 'Net' includes additional space, subtracting existing space on sites being developed or proposed for development.

"Office space projections in the Downtown Plan Draft EIR indicate the C-3 District would contain approximately 70.5 million gross sq. ft. of office space by 1990, and 78.9 million gross sq. ft. of office space by 2000./1c/ Alternatives analyzed for the Downtown Plan DEIR indicated a range of 77.5 million to 86.5 million gross sq. ft. of total office space in the C-3 District by 2000./1d/ Forecasts in the Downtown Plan DEIR indicate net increases of office space in the downtown of approximately 1.4 million sq. ft. per year between 1984 and 1990 and a range of 0.7 to 1.6 million sq. ft. per year between 1990 and 2000."

The following notes are added after Footnote /1/ on p. 46 of the DEIR:

"/1a/ San Francisco Department of City Planning, 'Major Office Building Construction in San Francisco Through 1982,' March 15, 1983.

/1b/ San Francisco Department of City Planning, Downtown Plan DEIR), EE.81.3, March 16, 1984, pp. IV.B.2 and IV.B.17.

/1c/ Downtown Plan DEIR, pp. IV.B.28 and IV.B.31.

/1d/ Downtown Plan DEIR, Appendices, pp. G.37-G.41."

The following text replaces the second and third complete paragraphs on p. 130, Section IV., Environmental Impact of the DEIR:

"Downtown Office Space

"The proposed project, together with other major downtown office buildings under formal review (8.7 million net new sq. ft.), approved (4.8 million net new sq. ft.), and under construction (5.1 million net new sq. ft.) would add about 19.0 million gross sq. ft. of net new office space if all were to be built [see Appendix C-2, p. A-1 to A-8 of this report]. This list subtracts existing office space, on the sites of new buildings, that would be demolished. Of the 19.0 million sq. ft. of office space on the cumulative list, about 12.8 million is within the C-3 District.

"Projections for alternatives in the Downtown Plan Draft EIR for the C-3 District indicate 70.5 million gross sq. ft. of office space in 1990 and between 77.5 and 86.5 million gross sq. ft. of office space in 2000, an increase of 14.4 to 24.4 million sq. ft. The Downtown Plan would result in an increase of 16.8 million sq. ft./18/ These projections considered land availability, location preferences, market conditions, and economic trends as independent variables, plus various zoning and planning policies of the Downtown Plan and the five alternatives analyzed in the Downtown Plan DEIR. The forecasts in the Downtown Plan DEIR are of space expected to be built and occupied in the C-3 District between 1984 and 2000.

"The amounts of office space on the cumulative list and in these forecasts, although distinct from each other, can be compared. The list contains about 12.8 million sq. ft. of office space in the C-3 District and the Downtown Plan DEIR indicates about 8.4 million sq. ft. of office space being added to the C-3 District between 1984 and 1990. The 12.8 million sq. ft. on the list would be expected to be absorbed in the mid 1990s.

"Office space projections for all alternatives in the Downtown Plan DEIR for the year 2000 would exceed existing office space plus office space on the cumulative list, as the cumulative list cannot take into account projects not yet proposed. Office space on the cumulative list would be absorbed in the

mid 1990s under all Downtown Plan DEIR alternatives. These comparisons are based on the assumption that all projects on the cumulative list would be built as proposed and projects not yet proposed (i.e., not on the cumulative list) would not be built before the years identified above. In addition, these comparisons are based only on projects on the cumulative list within the C-3 District.

The following note is added after Footnote /17/ on p. 134 of the DEIR:

"/18/ Department of City Planning, Downtown Plan Draft EIR, EE 81.3, March 16, 1984, pp. IV.B.17-IV.B.31 and Appendix G, pp. G.37-G.41."

The following text replaces the section beginning under Housing on pp.130-132 of the DEIR.

"Residence Patterns And Housing

"This section takes a long term perspective, focusing on changes in downtown office workers living in San Francisco and the housing market implications of downtown growth.

"Future Residence Patterns

"Employment growth and building development in downtown San Francisco will result in more employees working and living in the City. Over time, more existing residents will take San Francisco jobs and others who take San Francisco jobs will move into the City.

"Downtown Plan Forecast As Cumulative Context. Forecasts of residence patterns in the year 2000 were prepared for the Downtown Plan DEIR./19/ The scenario of C-3 District building development and employment growth under the Downtown Plan, as described in the Downtown Plan DEIR, incorporates the effects of policies affecting the size, cost and location of new development, as well as underlying economic conditions influencing the demand for space. The forecasts of residence patterns for this growth scenario incorporate future housing, labor force, and employment patterns in San Francisco and throughout the region and consider changing demographic, housing market, and transportation factors.

"According to the Downtown Plan forecasts, approximately 137,000 C-3 District office workers would be living in San Francisco in 2000. This represents an increase of 25,000 residents employed in C-3 District offices over the 112,000 estimated for 1984, a 22% increase./20/ Relatively more employed San Franciscans would be employed in C-3 District office jobs. The percentage (employed San Franciscans holding C-3 District office jobs) would increase from 32% in 1984 to 34% in 2000. Relatively fewer C-3 District office jobs

would be held by San Franciscans. The percentage (C-3 District office jobs held by San Franciscans) would decline from 50% in 1984 to 45% in 2000. These changes would be the result of cumulative development and employment growth in the C-3 District between 1984 and 2000.

"It is important to understand the difference between the two percentages above. In each case, the same estimate of the number of jobs held by San Francisco residents is compared to an estimate for a larger group: to all employed residents of the City in the first instance and to all C-3 District office employment in the second. The percentages are different since the number of employed residents is different from the number of office jobs. These percentages both describe the same employment situation, but from different perspectives.

The Downtown Plan forecasts fall within the range of estimates of C-3 District office workers living in San Francisco that was identified by the analysis of Alternatives in the Downtown Plan DEIR. By 2000, the Alternative forecasts range from 136,000 to 140,000 office workers living in San Francisco. The growth from 1984 to 2000 ranges from 24,000 to 28,000 additional office workers living in the City. The relative comparisons described above apply to all the Alternatives; the percentage of total employed San Franciscans working in C-3 District office jobs would increase while the percentage of C-3 District office jobs held by residents would decline.

"The proposed project, if approved, would be developed during this time period; businesses and employees would occupy the building; and, therefore, the project would contribute to the changes described above. The project would add about 300,700 sq. ft. of office space to downtown San Francisco. Over the 1984-2000 period, a net addition of about 16.8 million sq. ft. of office space is forecast for the C-3 District under the Downtown Plan./21/ (This estimate includes development of new office space and incorporates conversions and demolition of existing space.) The proposed project represents about two percent of the total increase in office space in the C-3 District over this period.

"Two formulas have been developed to estimate residence patterns on a project basis. (Project-related housing effects are discussed on pp. 121-122 of the DEIR.) The assumptions as well as the formula variables and their values are different. Nevertheless, the estimates that they provide represent a range of possible results.

"Using the OHPP formula, the project would be associated with about 480 office workers living in San Francisco. Using the 101 Montgomery EIR formula, the increase in office workers living in San Francisco would range from 180 to 360./22/ In the context of cumulative changes in residence patterns under the Downtown Plan, the project would contribute from 0.7 percent to 1.9 percent of the total change, depending on the formula. (For this report, the formulas have been used to develop estimates of increases in office workers living in San Francisco. These estimates have not been converted into numbers of households. This approach was taken so that the project-related information would be comparable to the Downtown Plan DEIR analyses and forecasts which describe increases in office workers and do not identify households.)

"Estimates Based On The List Of Office Projects In Downtown San Francisco. An alternative means of evaluating the cumulative effects of office projects such as the proposed 505 Montgomery project is to use the list of all projects that are under construction, approved, or under formal review. As of March 10, 1984, the City's list of such projects included the net addition of about 19.0 million sq. ft. of office space. (This list is discussed in Appendix C, pp. A-1 to A-8 of this report.) The list incorporates projects proposed in the greater downtown area which is larger than the C-3 District. Of the 19.0 million sq. ft. total, the list includes 12.8 million sq. ft. in the C-3 District. This amount of space is smaller than the 16.8 million sq. ft. forecast for the C-3 District by 2000 in the Downtown Plan DEIR.

"The proposed project would represent 1.6 percent of the total net new office space on the March 10, 1984 cumulative list. To compare the project's effects to the potential overall effects if all the projects on the list were built as proposed, it is possible to calculate from the list the change in

the number of downtown office workers living in San Francisco. The two formulas used above for estimating the project's effects are applied to the total square footage for all projects on the list.

"The development of all projects on the list would result in about 30,400 additional downtown office workers who live in the City, according to the OHPP formula. Using the range from the 101 Montgomery EIR formula, there would be 11,400 to 22,800 additional office workers living in the City if all projects on the list were built. The project would represent about 1.6 percent of these larger estimates of office workers living in the City.

"Differences In Cumulative Approaches. There are several important differences between the two approaches to cumulative analysis: the approach of forecasting space and employment and the approach of using a list of proposed projects. The first approach is currently limited to C-3 District office space while the second covers a larger geographic area. In addition, there is no definite timeframe associated with the list, while the forecasts represent a best estimate of the development likely to be built and occupied from 1984 to 2000. Finally, the forecast methodology incorporates changes in economic activity and employment that would occur in the use of existing space while the list only includes the changes accommodated by new construction./23/ It is because of these differences that the cumulative estimates of future residence patterns under each approach are not comparable. Within each approach, however, the project can be compared to the cumulative totals as described above.

"Housing Market Implications/24/

"With continued office growth, there would be more people with preferences for San Francisco housing and with greater financial resources to pay for housing. These effects have impacts on the City's housing market.

"At a minimum, continued office employment growth at the levels reflected by the Downtown Plan DEIR forecast and the cumulative list would contribute to keeping prices and rents at their current levels (in constant dollars). Depending on the future of other factors (such as interest rates and the

availability of mortgage money), employment growth could contribute to a future situation where prices and rents are moderately higher, on average, than current levels.

"Higher prices/rents for San Francisco housing would mean that some people would decide not to move into San Francisco, current residents who rent would find it more difficult to buy a home, and some existing residents would move out of the City if they find more acceptable housing elsewhere. Many others would continue to live in San Francisco and to pay higher prices/rents for City housing. Still others, who are unable to pay more, would be forced to accept housing which does not meet their preferences or needs. And finally, owners of existing units would benefit to the extent that their investments appreciate.

"The proposed project, as part of the future pattern of downtown office development, would contribute to these housing market impacts. The project's individual contribution cannot be separately identified.

"In terms of the region's housing market, downtown office development and employment growth would not, by themselves, make a noticeable difference in the housing markets in other Bay Area counties or in the region overall. As a part of total regional employment growth to the year 2000, however, increases in San Francisco office employment can be viewed as contributing to regional housing demand. A strong regional economy has and will continue to be a factor supporting a competitive regional housing market with relatively high housing prices and rents."

The following notes are added after Footnote /18/ on p. 132 of the DEIR:

"/19/ For a description of the methodology used to forecast residence patterns, see Appendix I, Downtown Plan DEIR, EE81.3, published March 16, 1984, pp. I.8-I.30. For a description of existing and forecast future residence patterns of C-3 District workers, see Downtown Plan DEIR, Section IV.D, Residence Patterns and Housing. Appendix I and Section IV.D of the Downtown Plan DEIR are hereby incorporated by reference into this EIR pursuant to Section 15149 of the CEQA Guidelines.

/20/ Downtown Plan DEIR, p. I.36.

Only the forecasts of residence patterns for C-3 District office workers are described here. The Downtown Plan DEIR presents residence patterns for all C-3 District workers, of which office workers represent the largest group.

The forecasts presented here are for all C-3 District office employment, including management/technical and trade/customer service office activities.

/21/ Downtown Plan DEIR, p. IV.B.34.

/22/ There are two primary reasons for the differences in the estimates of office workers living in San Francisco as derived from the two formulas. One is that they include different assumptions about the increase in office workers living in San Francisco (40% in the OHPP formula as compared to 15-30% in the 101 Montgomery EIR formula). The 101 Montgomery EIR formula includes the low estimate (15%) to adjust for the fact that some increase in downtown office workers will include individuals who already live in San Francisco when they become newly employed in a downtown office job. The 101 Montgomery Street Final EIR is hereby incorporated by reference into this EIR pursuant to Section 15149 of the CEQA Guidelines.

It should be noted that both formulas above were derived from earlier data bases. Therefore the Downtown Plan DEIR analysis and forecasts are not identical to these formulas. Procedures for applying that analysis on a project basis have not been developed. However, the results of applying such a revised formula would likely fall within the range identified by the two existing formulas described herein.

/23/ As explained in the Downtown Plan DEIR, the use of existing space is expected to intensify by the year 2000. As a result, office employment is forecast to exceed the growth of employment accommodated by the development of office space. For example, from 1990 to 2000, more intensified use of existing space to accommodate employment growth would be equivalent to about a 40 percent increase in the net addition of office space forecast for that period. (See p. IV.B.41 in Downtown Plan DEIR.)

/24/ This subsection presents a summary of the discussion in the Downtown Plan DEIR (see pp. IV.D.77 - IV.D.82)."

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San Francisco Fire Department
260 Golden Gate Ave.
San Francisco, CA 94102
Attn: Edward J. Phipps,
Chief, Division of Planning and Research

San Francisco Municipal Railway
Planning Division
949 Presidio Avenue, Room 204
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Attn: Peter Straus

San Francisco City Planning Commission
450 McAllister Street
San Francisco, CA 94102
Attn: Lee Woods, Secretary
Commissioners
Tony Rosenblatt, President
Susan Bierman
Roger Boas
Norman Karasick, Alt.
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C. Mackey Salazar
Rudy Nothenberg
c/o Douglas G. Wright, Alt.

San Francisco Department of
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Traffic Engineering Division
460 McAllister Street
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San Francisco Public Utilities
Commission
Bureau of Energy Conservation
949 Presidio Ave., Room 111
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Attn: Barbara Moy,
Assistant Director

San Francisco Public Utilities
Commission
City Hall, Room 287
San Francisco, CA 94102
Attn: Rudy Nothenberg

San Francisco Public Utilities
Commission
949 Presidio Avenue, Room 150
San Francisco, CA 94115
Attn: Tom Jordan, Director
Bureau Services

Recreation and Park Department
McLaren Lodge
Golden Gate Park
Fell and Stanyan Streets
San Francisco, CA 94117
Attn: Deborah Lerner

San Francisco Real Estate Department
450 McAllister St., Room 600
San Francisco, CA 94102
Attn: Wallace Wortman
Director of Property

San Francisco Committee for Utility
Liaison on Construction and Other
Projects (CULCOP)
c/o GES - Utility Liaison
City Hall, Room 363
San Francisco, CA 94102
Attn: Joseph Corollo

San Francisco Water Department
Distribution Division
425 Mason St.
San Francisco, CA 94102
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AIA
San Francisco Chapter
790 Market St.
San Francisco, CA 94102

Appraisal Consultants
701 Sutter St.
San Francisco, California 94109
Attn: Wayne E. Stiefvater,
President

Asian, Inc.
1610 Bush St.
San Francisco, CA 94109
Attn: Harold Yee

Asian Americans for Equality
759 Jackson St.
San Francisco, CA 94133

Asian Community Center
19 Brenham Place
San Francisco, CA 94108

Asian Law Caucus, Inc.
36 Waverly Place, Suite 2
San Francisco, CA 94108
Attn: Edwin M. Lee

Asian Neighborhood Design
576 Vallejo St.
San Francisco, CA 94133
Attn: Gilbert Chan

Asian Week Publishing Co.
811 Sacramento St.
San Francisco, CA 94108

Art Blum / Public Relations
627 Commercial St.
San Francisco, CA 94111
Attn: Kathy Gibbs

Bay Area Council, Inc.
348 World Trade Center
San Francisco, CA 94111

Bendix Environmental Research, Inc.
1390 Market St., Suite 902
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Finance Department
Coldwell Banker
1 Embarcadero Center, 23rd Floor
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Urban & Regional Planners
70 Zoe St.
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316 Wurster Hall
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681 Market St.
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Attn: Jeff Vance

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369 Pine St., #800
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Chickering & Gregory
3 Embarcadero Center
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Chinatown Coalition for Better Housing
615 Grant Ave.
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Chinatown Neighborhood Center, Inc.
615 Grant Ave., Second Floor
San Francisco, CA 94108

Chinatown Neighborhood Improvement
Resource Center
615 Grant Ave., Second Floor
San Francisco, CA 94108
Attn: Gordon Chin

Chinatown Transportation Research and
Improvement Program
615 Grant Ave.
San Francisco, CA 94108

Chinese for Affirmative Action
121 Waverly Place
San Francisco, CA 94108
Attn: Henry Der

Chinese American Citizen's Alliance
1044 Stockton St.
San Francisco, CA 94105

Chinese American Institute of Engineers
146 Waverly Place
San Francisco, CA 94108

Chinese Chamber of Commerce
730 Sacramento St.
San Francisco, CA 94108
Attn: George Chinn

Chinese Consolidated Benevolent
Association
843 Stockton St.
San Francisco, CA 94108

Chinese Democratic Club
915A Grant Ave.
San Francisco, CA 94108

Chinese Historical Society
17 Adler St.
San Francisco, CA 94108

Chinese Newcomers Service Center
816 Sacramento St.
San Francisco, CA 94108

Cogswell College Library
600 Stockton Street
San Francisco, CA 94108

Commercial News Publishing Co.
125 Twelfth Street
San Francisco, CA 94103
Attn: Annette M. Granucci

Committee for Better Parks and
Recreation Facilities of Chinatown
450 Grant Ave., Suite 222
San Francisco, CA 94108
Attn: Beverly Karnatz

Joseph Cortiz
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Cushman & Wakefield
555 California, Suite 2700
San Francisco, CA 94104
Attn: Calvin Dare

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1419 Broadway, Suite 700
Oakland, CA 94612

Downtown Association
582 Market St.
San Francisco, CA 94194
Attn: Lloyd Pflueger

Downtown Senior Social Serives
295 Eddy St.
San Francisco, CA 94102

Environmental Impact Planning Corp.
319 Eleventh St.
San Francisco, CA 94103

Environmental Planning & Research, Inc.
649 Front St.
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Charles T. Gill
The Aspen Group West, Inc.
505 Sansome, Suite 1005
San Francisco, CA 94111

The Foundation for San Francisco's
Architectural Heritage
2007 Franklin St.
San Francisco, CA 94109
Attn: Grant Dehart, Executive
Director

Friends of the Earth
1045 Sansome St., #404
San Francisco, CA 94111
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Annette M. Granucci
Commercial News Publishing Co.
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109 Minna Street, #293
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Heller, Ehrman, White & McAuliffe
44 Montgomery St., 32nd Floor
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San Francisco, CA 94111
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Station Manager

Knowlton Realty Ltd.
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Architecture & Planning, Inc.
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League of Women Voters
12 Geary St., Room 605
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Legal Assistance to the Elderly
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Kay Pachtner
Consumer Action
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Pacific Telephone & Telegraph
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San Francisco, CA 94105

Pillsbury, Madison & Sutro
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Attn: Gloria Root

Mrs. G. Bland Platt
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San Francisco, CA 94118

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San Francisco, CA 94104
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Construction Trades Council
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San Francisco Convention & Visitors
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San Francisco, CA 94103
Attn: George Kirkland

San Francisco Ecology Center
13 Columbus Ave.
San Francisco, CA 94111

San Francisco Forward
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San Francisco, CA 94104
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San Francisco Junior Chamber of
Commerce
251 Kearny St.
San Francisco, CA 94108

San Francisco Labor Council
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San Francisco, CA 94108

San Franciscans for Reasonable Growth
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San Francisco Tomorrow
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San Francisco, CA 94102
Attn: Tony Kilroy

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San Francisco, CA 94114

Senior Escort Program
South of Market Branch
814 Mission St.
San Francisco, CA 94103
Attn: Neighborhood Coordinator

Sierra Club
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Tenants & Owners Development
Corporation
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Tosta & Browning
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LIBRARIES

Institute of Governmental Studies
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University of California
Berkeley, CA 94720

Environmental Protection Agency Library
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San Francisco, CA 94105
Attn: Jean Circiello

Hastings College of the Law Library
198 McAllister St.
San Francisco, CA 94102

San Francisco Public Library (2 cc)
Main Branch, Documents Section
208 Larkin St.
San Francisco, CA 94102
Attn: Faith Van Liere

San Francisco Public Library
Business Branch
530 Kearny St.
San Francisco, CA 94104

Government Publications Department
San Francisco State University
1630 Holloway Ave.
San Francisco, CA 94132

Government Documents Section
Stanford University
Stanford, CA 94305

NEIGHBORING PROPERTY OWNERS

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626 Clay St.
San Francisco, CA 94108

Chinese Community Housing Corp.
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San Francisco, CA 94108

David S. Chu
2316 15th Ave.
San Francisco, CA 94116

Dortmunder Financial Company
c/o Golden Crest Properties
3410 Geary St., #314
San Francisco, CA 94118

Paul B. Fay, Jr.
c/o Fay Improvment Co.
3766 Clay St.
San Francisco, CA 94118

Kam Chan Overseas Inc.
c/o Lew & Fong
626 Grant Ave., #202
San Francisco, CA 94104

The Lurie Company
555 California St., #5100
San Francisco, CA 94104

Harriet E. Redinger
615 Sacramento St.
San Francisco, CA 94111

Walter Rupp
c/o Peter Wertheimer
5 Third St.
San Francisco, CA 94103

Utah International Inc.
550 California St.
San Francisco, CA 94108

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San Francisco, CA 94110
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San Francisco Chronicle
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San Francisco, CA 94103
Attn: Evelyn Hsu

San Francisco Examiner
Box 7260
San Francisco, CA 94120
Attn: Gerald Adams

San Francisco Progress
851 Howard St.
San Francisco, CA 94103
Attn: E. Cahill Mahoney

The Sun Reporter
1366 Turk St.
San Francisco, CA 94115

Tenderloin Times
146 Leavenworth Street
San Francisco, CA 94102
Attn: Rob Waters

V. APPENDIX

Appendix C, Table C-2, pp. A-29 to A-32 of the DEIR is replaced with the following text and tables:

"

APPENDIX C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO

"Process Used to Develop the Cumulative List of Office Projects In Downtown San Francisco:

"The attached list of office and retail projects was prepared as a background document for a land use-based method of analyzing cumulative impacts. A land use-based cumulative analysis is one of the two methods of cumulative analyses suggested by the State CEQA Guidelines (Section 15130(b)(1)(A)), whereby a list of related projects is used to determine the combined effects of the whole and to determine the contribution of a proposed office or retail project to the overall cumulative effect. This is only one method of determining cumulative impacts. The other method of determining cumulative impacts is an analysis based on estimates of total employment projected for the area. This latter method is permitted by State Guidelines Section 15130(b)(1)(B) if the employment projections are based on an appropriate planning document.

"The attached cumulative list is an expanded version of past lists and includes all office and large retail projects proposed, approved, under construction and recently completed in the greater downtown area which have active applications in the Department of City Planning. This list is appropriate for use only in a land-use based analyses of the cumulative impacts of office/retail projects in the greater downtown.

"Relevant Redevelopment Agency projects have been included in the list. The Rincon Point/South Beach Redevelopment Area includes four projects: 77,000 sq. ft. of office space at 181 Steuart Street, 200,000 sq. ft. of office space on First Street, and a 30,000-sq.-ft. office building, all in at least preliminary negotiation stages betweeen the Agency and potential developers; and 453,000 sq. ft. of office space proposed by the U.S. Postal Service at the Rincon Annex site (Source: San Francisco Redevelopment Agency). The listing for the Yerba Buena Gardens in the YBC Redevelopment Area includes 1.2 million sq. ft. of office space in the Olympia and York proposal (Source: San Francisco Redevelopment Agency). Other office buildings in the YBC and applicable parts of the Western Addition Redevelopment Areas are listed under individual building names or addresses, based on information obtained from regular contact with redevelopment agency staff. Other jurisdictions are also contacted when the cumulative list is updated: the new 293,000-sq.-ft. State Office Building under construction at Van Ness and McAllister is included; no Federal office space is proposed in downtown San Francisco in the near future other than that at the Rincon Annex

Post Office site in the Rincon Point Redevelopment Area, (Source: John Scales, General Services Administration, telephone conversation, April 11, 1984).

"Hotel projects have not been included in the list because hotel uses have different peaking characteristics from office buildings and generally do not significantly affect peak-hour traffic or transit and therefore also do not contribute to effects such as maximum production of air pollutants (see 135 Main Final Supplemental EIR, EE81.61, certified November 30, 1982, p. 150). Residential projects have not been included because residential uses are extremely limited in the study area and generally are unrelated to office uses. Residential travel in the downtown usually takes place in the contra-commute direction during peak hours and thus does not contribute to cumulative traffic or transit congestion. In addition, office trips in the p.m. peak period are assumed to be made by workers traveling to their residences. Trip generation calculated for residential uses includes persons returning to their homes after work in the p.m. peak. Inclusion in the cumulative analysis of residential uses in downtown San Francisco would double count project-generated travel: once when employees left their office building and again when they arrived at their residence if they lived in the downtown area.

"Approximately 1.3 million sq. ft. of office space is proposed for locations outside the greater downtown area. All but two of these projects (San Francisco Executive Park just east of U.S. 101 near the southern border of San Francisco, proposed for about 1.1 million sq. ft., and St. Mary's Medical Office Building on Shrader at Fulton, proposed to be about 90,000 sq. ft.) are under 10,000 sq. ft. These projects are not included on the cumulative list because their impacts do not accumulate measurably with office space in the downtown area. Although the Executive Park proposal would contribute to the auto traffic on U.S. 101, the critical analysis points for p.m. peak-period cumulative downtown traffic on U.S. 101 are the freeway entrances near downtown, the approaches to the Bay Bridge, and the Alemany interchange which restricts southbound U.S. 101 traffic on the p.m. peak period. Executive Park traffic would not contribute measurably to peak demands on freeway entrances near downtown or peak direction at peak period impacts on the Alemany interchange and is factored in as part of the traffic approaching the Bay Bridge before cumulative downtown development is added. (Executive Park Subsequent DEIR, EE81.197E, September 9, 1983. Note that an EIR was prepared in 1976 for a project on this site; following permits for four of the proposed office buildings, the developer made major changes in the project that necessitated a new EIR which is now in progress.)

"The Department's Master Project Log contains listings for projects which are no longer active for various reasons, such as no action by project sponsor in over one year, application withdrawn by sponsor, or project proposal revised to non-office or non-retail uses (examples of these projects include 272 Sutter, approximately 65,000 sq. ft., withdrawn by sponsor; 2nd and Harrison, 49,000 sq. ft., application revised from office space to parking lot). Some of these files have not been formally closed due to other higher staff priorities; however, the projects are not included on the cumulative list when staff assigned have concluded that the office project has been abandoned or withdrawn or the scope or nature of the proposal is so uncertain as to be not reasonably foreseeable.

TABLE C-1a: PROJECTS COMPLETED BEFORE 1984

Assessor's Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.	Date Occupied
		Completed But Not In Base Case Analysis					
106	81.415ED	1299 Sansome	41,000	41,000	3,500	3,500	1983
141	81.151EV	100 Broadway	13,000	13,000			1983
163	EE81.1	901 Montgomery	63,000	63,000	18,800	18,800	1983
164	81.631D	847 Sansome	23,750	23,750			1983
164	81.251D	936 Montgomery	21,500	11,500			1983
196		736 Montgomery	40,000	40,000			1983
196	CU79.49	Pacific Lumber Co.	92,000	92,000			1983
206	81.165D	401 Washington/Battery	13,200	13,200	1,800	1,800	1983
228	81.610ED	569 Sacramento (C)	19,000	19,000			1983
237	DR80.6	353 Sacramento (Daon)	277,000	251,000	8,300	-2,000	1983
240	DR80.16	550 Kearny (Addition)	71,400	71,400			1983
263	CU79.12	101 California	1,265,000	1,257,000	24,700	-14,300	1983
287	81.550D	Sloane Building (C)	125,300	125,300	30,000	30,000	1983
292	DR79.13	Crocker National Bank	676,000	495,000	86,000	54,000	1983
312	EE79.370	50 Grant	90,000	90,000			1983
313	EE77.257	Nieman Marcus			143,000	128,000	1982
351	DR79.133	10 U.N. Plaza	92,050	92,050			1983
738	SFRA	One Flynn Center	25,000	25,000			1983
762	SFRA	Opera Plaza (M)	50,000	50,000			1983
3518	81.483V	291 10th St.	25,700	25,700		-25,700	1983
3702	EE81.25	1155 Market/8th	138,700	138,700	8,800	8,800	1983
3708	DR80.34	25 Jessie/Ecker Square	111,000	111,000			1983
3709	DR80.36	Five Fremont Center	791,200	722,200	35,000	17,300	1983
3712	DR79.11	Federal Reserve	640,000	640,000			1983
3717	EE78.413	150 Spear	330,000	330,000			1983
3718	DR79.12	Pacific Gateway	540,000	540,000	7,500	7,500	1983
3724	SFRA	Yerba Buena West	335,000	335,000			1983
3732	81.548DE	466 Clementina (C)	15,150	15,150			1983
3735	SFRA	Convention Plaza	339,000	339,000			1983
3735	SFRA	Planter's Hotel (C)	20,000	20,000			1983
3752	EE77-220	Office Bldg. (YBC SB-1)	11,000	11,000			1983
3763	81.287V	490 2nd at Bryant (C)	40,000	40,000			1983
3763	81.381	480 2nd at Stillman (C)	35,000	35,000			1983
3763	32.38EVD	400 2nd & Harrison	71,500	49,500			1983
3776	81.693EV	539 Bryant/Zoe	63,000	63,000			1983
TOTAL			6,504,450	6,188,450	367,400	227,700	

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commrcial)

SOURCE: Department of City Planning.

"In EIRs prepared during the latter half of 1983, the list used for cumulaitve analyses included a section labeled 'Completed But Not in Base Case.' As of the end of 1983, that list totaled over 6 million sq. ft. of office space and about 225,000 sq. ft. of retail space (see Table C-1a, Projects Completed Before 1984, p. A-4 of this document). These projects were included on earlier lists even though they were built and fully or partially occupied because some of the baseline data (measurements of the existing situation) for some transportation systems was collected in about mid-1982 and thus could not include the effects of these projects. The baseline has recently been updated to reflect 1984 for use in the Downtown Plan Draft EIR. Projects completed before 1984 are included in this updated baseline data. Using 1984 as the existing baseline situation means that projects completed by the end of 1983 should be omitted from the list of projects used for cumulative analysis in order to avoid counting effects of the projects twice. Because some of the baseline data previously used was collected more recently than mid-1982, list-based cumulative analyses overestimated some reported impacts by measuring the effects of office buildings as part of the baseline existing situation and by including the same office building in the calculations of future cumulative impacts. For example, PG&E is already serving office buildings completed in 1982 and 1983; including those buildings in calculations of future cumulative energy demand would count them twice. Therefore, for some part of the cumulative analyses, omitting projects completed by 1983 will provide more realistic predictions of future conditions.

"The Department is aware of a proposal for the Southern Pacific property near China Basin, called 'Mission Bay.' The applicaion for environmental review for that project has been withdrawn; no other applications have been filed. The project is too speculative to analyze; intensity, density and types of uses have not yet been determined by the developer. Parts of the developer's original proposal would require major rezoning and amendment of the City's Comprehensive Plan. Further, two San Francisco Supervisors have proposed that the City acquire the property, and one neighborhood has prepared a development plan quite different from that withdrawn by the developer. Without more settled decisions about this property, it is not reasonably foreseeable, to include it in the cumulative list analysis.

"The Department of City Planning is in the process of preparing plans and environmental analyses for several areas in or near the downtown. Because these plans involve only proposals for zoning and other land use controls, they are not properly part of any cumulative list. Although analyses for these plans sometimes predict amounts of office space that could be built in the area being studied, the predictions are for purposes of assessing impacts of the plans and in no way reflect proposed future development.

"Use of the Department's list for estimating cumulative impacts builds in certain limitations. It assumes, for example, that all proposals will be built at essentially the size proposed and that all buildings once built will be fully occupied. It is important to note that the cumulative list has not been adjusted to reflect temporary limitations on growth impacts by the City's actions to establish a Special Use District in the South of Market and a moratorium on new office and hotel space over 50,000 sq. ft. Nor has any adjustment been made to account for reduced building potential as proposed in the Downtown Plan (base FAR of 14:1 reduced to 10:1). Thus, the total square footages on the list of projects under formal review may be overestimated, and impacts based on the square footages may also in overestimated, if some buildings are not built, not fully occupied, or reduced in size.

"

TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
59	83.177E	1620 Montgomery	82,270	45,390		
110	82.129E	1000 Front	139,000	139,000	3,000	3,000
112	83.447E	1100 Sansome	55,000	48,000		
113	82.418E	1171 Sansome	30,000	30,000		
113	82.418E	220 Green	3,520	3,520		
130	83.612C	1558 Powell	2,500	2,500		
136	83.476V	962 Battery	15,000	15,000		
192	83.412ED	1055 Stockton			81,500	66,500
194	83.128E	732 Washington	17,500	17,500	11,240	11,240
195	82.643E	660 Washington	3,938	3,938		
227	82.463E	505 Montgomery	327,300	300,670	12,100	-4,775
228	83.422E	560 Sacramento	48,000	31,000		
229	83.222EC	Embarcadero West	575,000	382,000	9,000	9,000
236	82.511E	222 Front	40,250	33,400	3,250	-0-
258	82.421E	Pine/Kearny	186,000	186,000	6,750	6,750
266	83.420ED	98 Battery	169,000	106,500		
267	83.421ED	225 Pine	134,000	134,000		
287	83.91ED	237 Kearny/Bush	99,600	87,800	6,100	2,400
285	83.148E	665 Bush (M)	12,400	2,600		-2,700
309	83.333E	212 Stockton	32,220	15,885	21,700	16,200
326	8312187	156 Ellis	3,200	3,200		
327	82.445E	Stockton/O'Farrell	43,300	25,750	57,950	28,000
331	81.448E	Mixed Use Development	50,000	50,000	70,000	49,000
336	83.21ECV	440 Turk	25,000	8,150		
642	83.218V	1699 Van Ness	20,000	20,000		
814	81.540E	101 Hayes	132,000	132,000	6,000	6,000
3526	83.475V	530-550 9th	42,300	42,300		
3702	83.196E	1169 Market, Trinity	820,000	805,000	40,000	40,000
3704	83.404	901 Market Penney's	145,500	126,000	80,000	80,000
3705	83.314E	5th and Market	880,000	778,000	120,000	40,000
3707	SFRA	YBC Office Bldg.	593,000	593,000		
3708	81.297ED	562 Mission	405,000	265,000	10,000	10,000
3708	83.75E	49 Stevenson	169,600	136,900	9,800	-2,900
3721	83.331E	100 First @ Mission	348,920	342,000		
3721	83.40EZD	524 Howard	279,000	279,000	15,000	15,000
3735	83.313E	35 Hawthorne	47,400	47,400	2,900	2,900
3736	83.311E	299 2nd @ Folsom	206,000	171,000	10,000	10,000
3744	84.41E	Hills Bros.	635,000	535,000	40,000	40,000

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TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
3749	83.464EV	50 Guy Place	17,500	17,500		
3752	83.310E	837 Folsom	200,000	200,000		
3769	83.213EV	59 Harrison	113,500	49,750		
3776	83.451E	501 Bryant	67,000	35,000	14,000	4,000
3778	83.547E	775 Bryant	27,890	27,890	3,675	3,675
3786	82.33E	655 5th/Townsend	126,250	126,250		
3786	83.272EV	525 Brannan	13,500	13,500		
3788	82.352EV	640 2nd	39,100	37,400		
3789	82.31EV	615 2nd/Brannan (C)	90,000	70,000	9,300	9,300
3794	83.545V	139 Townsend	51,200	50,000		
3923	81.491EVF	1550 Bryant	80,600	49,600		
-	SFRA	Yerba Buena Gardens	1,340,000	1,340,000		
-	SFRA	Rincon Point/S. Beach	760,000	760,000		
TOTAL UNDER FORMAL REVIEW			9,744,260	8,721,295	643,265	442,590
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
65	82.168V	990 Columbus	12,000	12,000		
112	81.258	Ice House (C)	209,000	209,000		
164	81.573D	50 Osgood Place	22,500	22,500	9,100	9,100
176	83.229E	801 Montgomery	31,800	31,800	6,200	6,200
176	82.368E	900 Kearny	25,000	25,000	5,000	5,000
225	81.403ED	814 Stockton	3,500	3,500	3,300	3,300
265	81.195ED	388 Market at Pine (M)	234,500	85,500	10,000	-8,500
268	81.422D	250 Montgomery at Pine	105,700	65,700	8,000	8,000
271	83.13E	582 Bush	18,100	18,100	800	800
288	81.687ED	222 Kearny/Sutter	150,000	49,950	10,000	-8,400
294	82.870	44 Campton Place	7,600	7,600		
642	82.224VEC	1750 California	82,525	82,525		
647	82.24V	1581 Bush (C)	16,000	16,000		
669	81.667ED	1361 Bush	13,000	13,000		
690	SFRA	Post/Van Ness	88,000	88,000		
716	81.581ED	Polk/O'Farrell (M)	61,600	61,600	22,400	22,400
818	83.94EV	583-591 Hayes (C)	4,900	4,900		
3524	82.137V	44 Gough (C)	30,000	30,000		

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TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
3702	81.549ED	1145 Market	137,500	108,500	8,000	8,000
3705	80.315	Apparel Mart III	332,400	332,400		
3707	81.492ED	90 New Montgomery	124,300	124,300	3,350	3,350
3707	81.245DA	New Montgomery Pl.	227,500	209,700	2,200	-3,900
3708	81.493ED	71 Stevenson	324,600	324,600	6,200	6,200
3709	81.113ED	Central Plaza	353,100	136,300	17,400	17,400
3717	81.183E	123 Mission	342,800	342,800		
3724	81.102E	Holland Ct. (C)	27,850	27,850		
3729	82.860	774 Tehama	5,800	5,800		
3733	EE81.2	868 Folsom	65,000	65,000		
3733	82.29E	832 Folsom	50,000	50,000		
3735	SFRA	75 Hawthorne (C)	61,900	61,900		
3738	DR80.5	315 Howard	294,000	294,000	3,200	3,200
3749	EE81.18	Marathon - 2nd & Folsom	686,700	686,700	35,300	35,300
3750	82.241E	600 Harrison	228,000	228,000	10,000	10,000
3750	82.77V	642 Harrison (C)	54,400	45,900		
3764	82.591E	Second St. Sq. (C)*	333,000	263,000	25,000	25,000
3775	81.147V	338-340 Brannan (C)	36,000	36,000		
3776	EE81.59	Welsh Commons (M)	55,600	55,600	12,000	12,000
3788	81.296Z	690 2nd/Townsend (C)	16,600	16,600	16,000	16,000
3789	81.552EV	625 2nd/Townsend (C)	157,000	157,000		
3794	81.569EV	123 Townsend	104,000	49,500		
3794		155 Towsend	19,000	19,000		
3803	81.244D	China Basin Expansion	196,000	196,000		
9900	81.63E	Ferry Building Rehab.	309,500	97,500	163,500	124,000
TOTAL	APPROVED		5,658,275	4,760,625	376,950	294,450
		Major Downtown Office Projects Under Construction				
58	82.234E	Roundhouse (C)	45,000	45,000	3,000	3,000
136	81.245	955 Front/55 Green	50,000	50,000		
143	81.353ED	1000 Montgomery (C)	39,000	39,000		
146	83.99EC	644 Broadway	42,800	42,800		
161	DR80.191	Mirawa Center	36,000	36,000	30,650	30,650
166	DR80.15	750 Battery	105,400	105,400	12,800	12,800
166	CU81.7	222 Pacific at Front (C)	142,000	142,000		

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TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects Under Construction				
167	SFRA	Golden Gateway III	103,000	103,000		
176	81.673EACV	Columbus/Pacific (Savoy)	49,000	49,000	22,000	22,000
208	81.104EDC	Washington/Montg. (M)	235,000	233,300	4,000	-1,200
227	EE80.296	Bank of Canton	230,500	177,500		-800
239	DR80.1	456 Montgomery	160,550	160,550	24,250	24,250
240	81.705ED	580 California/Kearny	329,500	260,000	6,500	6,500
261	81.249ECQ	345 California (M)	640,000	466,500	15,500	15,500
262	81.206D	130 Battery	41,000	41,000		
270	81.175ED	466 Bush	86,700	86,700	7,800	2,200
271	81.517	453 Grant	27,500	27,500	6,200	6,200
288	81.461EC	333 Bush (Campeau) (M)	498,400	458,100	20,900	20,900
288	DR80.24	101 Montgomery	264,000	234,000	4,900	-14,100
289	81.308D	One Sansome	603,000	603,000	7,000	7,000
311	82.120D	S.F. Federal	246,800	218,850	1,600	-9,440
351	DR79.24	Mardikian/1170 Market	40,000	40,000		
641	82.200CV	1735 Franklin (C)	8,600	8,600		
672	SFRA	Wealth Investments	104,500	104,500		
743	SFRA	Van Ness/Turk (Vanguard)	85,000	85,000		
767	STATE	State Office Building	293,300	293,300		
816	82.212ED	300-350 Gough (M/C)	16,000	16,000		
834	82.603E	25 Van Ness (C)	101,800	42,800	36,400	36,400
3512	82.14	Van Ness Plaza	170,000	170,000	6,000	6,000
3715	82.16EC	121 Steuart	33,200	33,200		
3715		141 Steuart	80,000	80,000		
3717	EE79.236	101 Mission	219,350	219,350		
3717	EE80.349	Spear/Main (160 Spear)	279,000	279,000	7,600	7,600
3717	82.82D	135 Main	260,000	260,000	4,000	4,000
3722	81.417ED	144 Second at Minna	30,000	30,000		
3741	82.203C	201 Spear	229,000	229,000	5,200	5,200
3787	81.306	252 Townsend at Lusk	61,000	61,000		
TOTAL UNDER CONSTRUCTION			5,985,900	5,530,950	226,300	184,660
GRAND TOTAL (ALL PROJECTS)			21,388,430	19,012,870	1,246,515	921,700

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commercial)

SOURCE: Department of City Planning

APPENDIX D: TRANSPORTATION, CIRCULATION AND PARKING

Revisions to Appendix D are presented below. The text of Appendix D of the DEIR on pp. A-38 to A-40 is deleted. "Traffic and Parking Analysis," p. A-41 to A-42 and "Employment Trend Approach to Cumulative Analysis," pp. A-43 to A-46 are deleted. Footnotes /1/ to /7/, pp. A-46 to A-47 of the DEIR are deleted. Tables D-1 and D-4 are replaced as included on pp. A-10 and A-14 of this document. Figures D-1 and D-2, pp. A-48 to A-52 of the DEIR, remain, and are not included in this report.

"APPENDIX D: TRANSPORTATION, CIRCULATION, AND PARKING

TABLE D-1: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

Level of Service	Description	Passengers per Seat
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with less than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00-0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence as the restricted freedom of movement for passengers requires longer loading times.	1.01-1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur which can rapidly cause operations to deteriorate.	1.26-1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability is extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51 1.60

SOURCE: Environmental Science Associates, Inc. from information in the Interim Materials on Highway Capacity, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.

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PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table D-2 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure D-2, p. A-51 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE D-2: PEDESTRIAN FLOW REGIMEN

FLOW REGIME/a/	CHOICE	CONFLICTS	FLOW RATE (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
	Design Limit - Upper Limit of Desirable Flow		
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure D-2, p. A-51.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.
SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table D-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE D-3: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

TABLE D-4: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio*
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the highervolumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

* Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.